THE WILLIAMSPORT AREA COMMUNITY COLLEGE

76/77

The Williamsport Area Community College

A Two-Year, Co-Educational,

Publicly Supported Institution

Serving North Central Pennsylvania;

Fully Accredited Member of

Middle States Association of Colleges and Secondary Schools.

THE WILLIAMSPORT AREA

COMMUNITY COLLEGE

BULLETIN

AND

ANNOUNCEMENT OF COURSES

1976-1977

1005 WEST THIRD STREET
WILLIAMSPORT, PENNSYLVANIA 17701

WILLIAMSPORT AREA COMMUNITY COLLEGE

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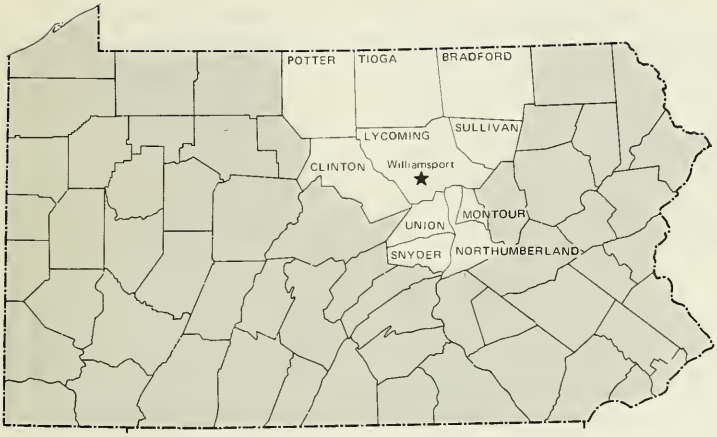


WACC SPONSOR SCHOOL DISTRICTS

Bradford County
Canton Area
Troy Area

Clinton County
Keystone Central

Columbia County
Millville

Lycoming County
East Lycoming
Jersey Shore Area
Montgomery Area
Montoursville Area
South Williamsport Area
Williamsport Area

Northumberland County
Line Mountain
Warrior Run

Snyder County
Selinsgrove Borough
Mid-West

Sullivan County
Sullivan County District

Tioga County
Northern Tioga Area
Southern Tioga Area
Wellsboro Area

Union County
Mifflinburg Area

CAMPUS

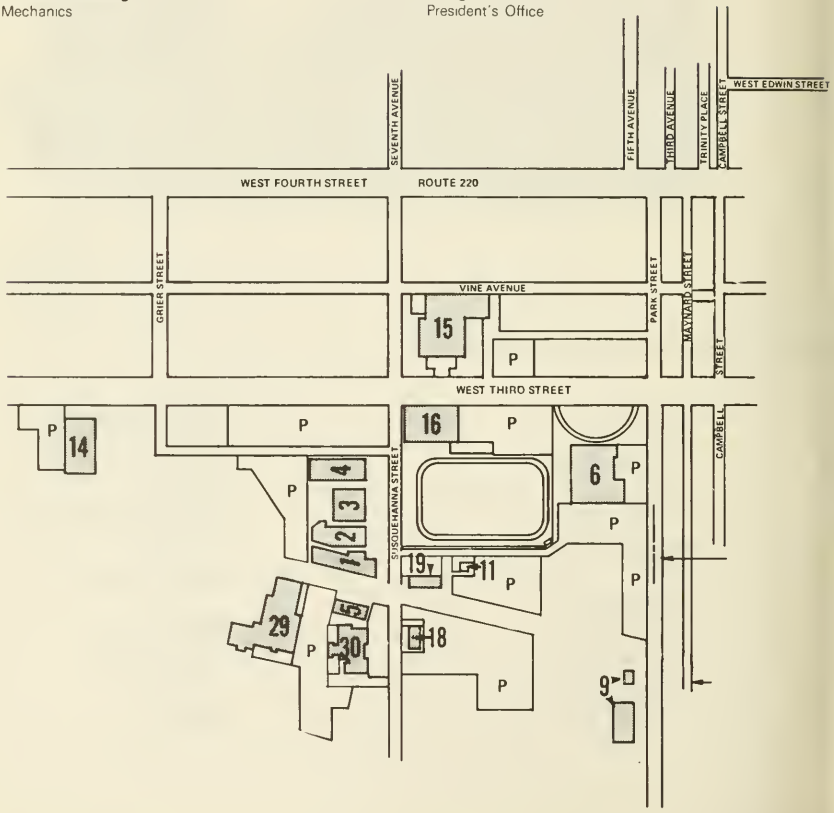
1 **Secondary Automotive Building**

2& **Electrical Building**
3 Electrical Technology
Electrical Construction
Welding

4 **Machine Shop Building**
Toolmaking Technology
Machinist - General

5 **William Stitzel Building**
Diesel Mechanics

6 **Administration Building**
Architectural Technology
Broadcasting
Electronics Technology
Engineering Drafting Tech
Graphic Arts
Mechanical Drafting
Printing
Technical Illustration
Laboratories
Business Office
College Information
President's Office

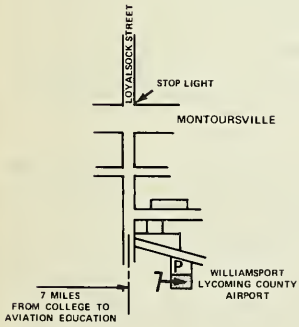


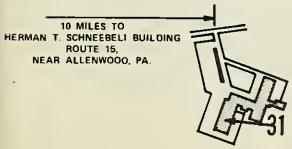
7 WACC Hanger at Airport
Aviation Technician

9 Crooks Maintenance Bldg.

11 Student Government House
SGA Offices

14 Rishel Building
Developmental Studies
Learning Resources Center
Library Assistant
Sign Painting





15 Klump Academic Center
Accounting
Business Management
Computer Science Technology
Food & Hospitality Management
Journalism
Secretarial Science
Admissions & Records
Cafeteria
Classrooms
College Ombudsman
Community Services Center
Computer Center
Counseling
Dean of Postsecondary
Instructional Services
Dean of Student Services
Financial Aid
Housing Office
Operating Room Technician
Placement
Practical Nursing
Security (Parking, Lost & Found)
Spotlight
Student Activities
Tot Watch
Veterans Office

16 Lewis Bardo Gym
Physical Education & Health

18 Audio-Visual Services House

19 Lair
Dispensary
Student-Faculty Center

29 Cromar Building
Carpentry
Carpentry & Building
Construction Technology
Civil Engineering Technology
Dean of Secondary
Instructional Services
Sheet Metal
Bookstore
Plumbing

30 George Parkes Building
Auto Body Repairman
Automotive Mechanics
Automotive Technology

31 Herman Schneebeli Building
Floriculture
Forest Technology
Heavy Construction Equipment
Service & Operation
Nursery Management

ABOUT THE COLLEGE

A Message from the President

This Bicentennial Bulletin demonstrates why The Williamsport Area Community College has been a pioneer and a leader in vocational education since the early part of the twentieth century. Today, as we enter the last quarter of this century, we plan to continue to build upon our long tradition as a unique educational institution serving the needs of both secondary and post-secondary students.

Our 2,900 postsecondary degree and certificate students come to us from every county in the Commonwealth, as well as from out-of-state and several foreign countries, to enroll in over 45 vocational-technical, career, and university transfer programs In addition, we serve several thousand North Central Pennsylvania citizens through diverse non-credit community education courses and special programs taught within our ten county service district.

This Bulletin describes our Postsecondary instructional services and programs No matter what your objective—personal development, career development—or both, we are interested in helping you achieve your greatest potential. Any adult of any age may take advantage, on a full-time or part-time basis, of the variety of educational opportunities available at The Williamsport Area Community College We invite you to explore these opportunities with us.

William H. Feddersen

President

Philosophical Platform

We believe in people—in their dignity, in their worth as individuals, and in their capacity to develop their abilities to the fullest potential We believe that people who perform competently and who find meaning in their work will be healthier and happier people, and the organizations in which they work and the communities in which they live will benefit. We believe in an integrated approach to learning where education and the world of work function in a co-operative atmosphere. We believe that by assisting people in discovering, preparing for, and developing a career we are also developing the individual and the community.

Mission Statement

It is the mission of The Williamsport Area Community College to provide performance-oriented educational services responsive to the current and future needs and interests of individuals and organizations in our service area. We are dedicated to working with other agencies in developing the full potential of individuals and communities in our area. We are deeply committed to providing quality and accessible career education on both the secondary and post-secondary level, as well as lifelong learning opportunities. Within the resources available to us, we will attempt to carry out our mission as efficiently as possible. Above all, we care about people and will attempt to fulfill our mission within the context of a humanistic educational environment

Institutional Goals

Primary Goals

1. To provide an equal educational opportunity for all citizens within the context of a humanistic educational environment.
2. Prepare or retrain individuals for employment and advancement through a comprehensive program of career education.
3. Provide services which assist secondary and postsecondary students in exploring their career interests, in recognizing their aptitude, and in developing a program which best suits their needs, interests, and potential for personal growth, and obtaining employment in their chosen fields.
4. Contribute to the life-long learning opportunities of our service area through on- and off-campus educational programs in co-operation with other organizations.

Support Goals (Internal)

1. Strive for effectiveness and efficiency in all aspects of institutional operation.
2. Provide appropriate facilities, attractive grounds, and a physical environment which stimulate and enhance learning.
3. Offer programs of staff development for all personnel which foster an institutional climate favorable to individual growth and encourage participation in decision-making by all constituents.
4. To provide an opportunity for communication between the College and all those affected by its operation; i.e., students, staff, community, etc.

Support Goals (External)

1. Provide for adequate financial resources to support the institution's programs and services.
2. Co-operate with other institutions, organizations, and agencies in formulating and implementing viable programs and services.
3. Communicate the College's mission, goals, objectives, and programs to the public.
4. Maintain accountability to the public, to sponsoring school districts, and to the State with regard to the educational, fiscal, legal, and contractual aspects of the operation of the College.

History

The Williamsport Area Community College, which now serves over 444,000 people in ten North Central Pennsylvania counties, plus students from other counties, states, and countries, was born in 1914 as a small industrial arts shop at the Williamsport High School. Woodworking and machine shop were the first courses offered.

Following World War I in 1920, retraining veterans, many of them disabled, led to the establishment of the first full-time adult day school in a downtown building Courses were expanded to include patternmaking, automotive, and electric. An evening industrial school was started at the same time.

In 1927, to meet the demands for supervisors in the rapidly increasing number of diversified industries in the area, the Williamsport School District and the Williamsport Chamber of Commerce co-sponsored evening conferences in foremanship training. This type of school and local industry effort, which saw 150 foremen from twenty plants take the advanced training, has continued throughout the institution's history. The goal has always been to meet both individual and industry needs.

During the Twenties a co-operative work-study industrial course for students over sixteen was begun. By 1929, forty-eight companies were employing students proficient in school shops for alternating periods of work and study.

During the Depression the co-operation between the school and local industry gained nationwide recognition for its efficient and effective attack on rising unemployment through the retraining of men to fill the increasing number of skilled trade positions in the local plants. The Williamsport Plan, which became known and was copied throughout the country, encompassed co-operative training of Civilian Conservation Corps and National Youth Administration young men. Many Works Progress Administration instructors participated in the program.

One example of innovation was a truck driver training course using borrowed trucks. The first of its kind in the nation, the course evolved into the present safe driver course which is part of many high school curriculums In the heart of the Depression when other school districts were cutting budgets, such imaginative programs so impressed the community that it voted to build a new vocational building to meet the increased enrollment in the high school and adult programs.

On May 21, 1940, only eleven days after Holland and Belgium had been invaded, the school board appointed a special Emergency Training Commission to plan what part the school would play in the conflict which seemed certain to spread. At the end of the regular school term on June 14th, the staff and facilities were

immediately shifted from training unemployed men and women to 24-hour a day defense industry training The institution was one of the first, if not the first, in the country to begin defense training

By 1941 an astounding 6,500 adults were enrolled The adult education program and the vocational high school program were merged into one unit known as the Williamsport Technical Institute The separate programs of study were maintained.

Early in 1942 an intensified program for training handicapped persons for war production was started in co-operation with a local plant and the Pennsylvania Rehabilitation Service. This experience was later applied to anticipating the need to plan for similar training of veterans after the war Thousands of veterans, many of them disabled, learned trades for post-war jobs using G I benefits and school scholarships provided in co-operation with local manufacturers

Always striving to anticipate and fill area needs, in 1945 the Institute adopted the Watsontown Plan, forerunner of the area technical schools which have since spread throughout the state In 1947 a job-training and safety program was begun to meet the needs of rural electric co-operatives in Pennsylvania

Another first in the country was developed in 1951, the Vocational Diagnostic Program to provide a practical method of vocational counseling of rehabilitation clients and those with limited educational backgrounds Individual clients and those from groups such as the United Mine Workers and the Pennsylvania State Council for the Blind have made extensive use of this unique program.

By 1953 the Williamsport Technical Institute's international reputation as an outstanding vocational center earned it official approval to train foreign students Many foreign educators enrolled to study the methods of vocational education as a guide to establishing similar centers in their own countries.

In 1956 the Institute worked closely with the new Industrial Development Committee of the Williamsport Chamber of Commerce which was created to draw new industry to the city. A major factor in the relocation of several companies has been the availability of trained workers and the institution's ability to provide special courses to meet specific needs of these companies

As a result of the passage of the Community College Act of 1963, studies were begun which led to the establishment of The Williamsport Area Community College. The Institute served as the base for the new institution which opened for classes on September 7, 1965. Students, faculty, staff, administration, and facilities all became part of WACC. Since then, facilities have continued to be expanded and programs have been revised to keep pace with current needs.

During the 1973-74 academic year a major re-organization of the academic and administrative structure was begun to streamline the basic programs and institute modern management methods. The aim is to maintain WACC's historical mission of meeting constantly changing educational needs in the widespread community we serve, and be responsive to the needs of individuals

ADMISSION

Admissions Policy

The college operates under an open door admissions policy. This means that entrance examinations are not required for admission to the College but does not guarantee admission into a specific program or course. Admission is open without regard to age, national origin, race, religion, or sex.

In general, a high school diploma or its equivalent is necessary for a student to be admitted on a full-time basis. Adults without these credentials are also eligible for admission into a program appropriate to the aptitudes and abilities of the particular individual.

To implement this policy, the College offers a variety of programs and provides professional counseling to assist the applicant in selecting a program.

Admission Procedure

Full-Time and Part-Time Degree and Certificate Students

1. Obtain an application for admission by mailing one of the postcards at the back of this catalog, or by writing to:
   Admissions Office
   Williamsport Area Community College
   1005 West Third Street
   Williamsport, Pennsylvania 17701
   or phone (717) 326-3761 Ext. 336
2. Submit a completed application form along with a $10 application fee (non-refundable) to the Admissions Office.
3. Have your high school forward a transcript to the Admissions Office.
4. An interview is not required before you submit an application. However, applicants may be asked to come to the College for an interview after submitting complete credentials. If, at any time, you need additional information or assistance, you can arrange for an interview by writing or calling the Admissions Office.
5. The American College Test (ACT) or the Scholastic Aptitude Test (SAT) will not be required for associate degree or certificate program applicants, except in cases where it is needed for counseling purposes.
6. Applicants who are accepted must submit a Health Form prior to registration.

Adjunct Students

A student who does not wish to pursue a degree or certificate program is not required to make a formal application for admission or to file credentials. Non-degree/non-certificate students enroll directly with the Assistant Director of Admissions & Records during the designated registration period. If, at a later date, an adjunct student desires to enroll in a degree or certificate program, an application for admission, together with other required credentials, must be submitted to the Admissions Office.

Admission Preferences

Preference for admission will be given to WACC sponsoring school district applicants whose applications have been received prior to February 1. It should be noted that most programs have sufficient space for all applying students, although exceptions in certain areas of study may occur from year to year.

Early Admission Policy

A student of exceptional ability who has completed the eleventh grade in an accredited high school may be enrolled as a full-time or part-time student at WACC in either a degree or certificate program during what would normally be the senior year in high school. To qualify for such early admission, the chief administrative officer of your high school must approve and submit the application, together with an official high school transcript, to the Admissions Office for determination of eligibility for the specific degree or certificate program desired. Upon satisfactory completion of your first year in a full-time college program, you can qualify for a regular high school diploma.

Readmission

Former WACC students who wish to be readmitted should request a re-enrollment application from the Admissions Office

Transfer Students

Students wishing to transfer to WACC should request an application from the Admissions Office. If you wish to transfer credit from another institution, you should have that college send an official transcript directly to the Records Office for evaluation A maximum of thirty (30) credit-hours may be transferred toward an associate degree If you plan to graduate from WACC, the last semester must be completed here

TUITION AND FEES

Full-Time Students

A full-time student is defined as anyone enrolled in twelve or more credit-hours or an equivalent number of contact-hours per semester.

Application Fee

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $10 Application Fee with their application. You are required to pay this non-refundable fee only once Applicants for the Practical Nursing program do not pay this fee.

Tuition Deposit

All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied

If you enrolled at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester

Tuition and Related Fees

Tuition and related fees are governed by your area of residence. The four categories of residence and the tuition and fees for each are:

1 **WACC Sponsoring School District**

If you reside in a school district which sponsors The Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship to be eligible for Sponsoring School District tuition rates. The form should be mailed to the Business Office after you have been accepted and as soon as possible prior to registration.

	FULL-TIME	PART-TIME
TUITION	$270.00	$22.50*
SERVICE FEE	None	None
ACTIVITY FEE	$ 15.00	None
TOTAL	$285.00	$22.50*
LAB/SHOP FEE:	Variable**	

2. **Pennsylvania School District Sponsoring Another Community College**

If you reside in a school district which sponsors another Pennsylvania Community College, you must obtain permission, IN WRITING, from the Board of Trustees of that particular institution to qualify for Sponsoring School District tuition and fees. If you do not obtain permission, you will be charged the same tuition and fees as Out-of-State students.

	FULL-TIME	PART-TIME
TUITION	$270.00	$22.50*
SERVICE FEE	$ 67.50	$ 5.50
ACTIVITY FEE	$ 15.00	None
TOTAL	$352.50	$22.50*
LAB/SHOP FEE:	Variable**	

3. **Non-Sponsoring Pennsylvania School District**

If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania Community College, you will pay the following tuition and fees:

	FULL-TIME	PART-TIME
TUITION	$560.00	$46.75*
SERVICE FEE	$ 67.50	$ 5.50
ACTIVITY FEE	$ 15.00	None
TOTAL	$642.50	$52.25*
LAB/SHOP FEE:	Variable**	

4. **Out-of-State Resident**

Out-of-State students will pay the following tuition and fees:

	FULL-TIME	PART-TIME
TUITION	$810.00	$67.50*
SERVICE FEE	$135.00	$11.25
ACTIVITY FEE	$ 15.00	None
TOTAL	$960	$78.75*
LAB/SHOP FEE:	Variable**	

* Per Semester-hour of Credit, or equivalent

** If applicable. Lab and shop fees vary from program to program. A list of lab fees is available from the Office of Admissions and Records.

Withdrawals and Refunds

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application fees, service fees, activity fees, and tuition deposits are not refundable.

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

Prior to the first day of Classes	100% Refund
First Week of Classes	80% Refund
Second Week of Classes	70% Refund
Third Week of Classes	60% Refund
After Third Week of Classes	No Refund

Books and Supplies

Expenses for books and supplies will vary considerably from program to program. College policy strives to keep your expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost can be as high as $100 per semester.

Tools

When you have been accepted for a particular program, the Admissions Office will provide you with an appropriate list of tools which will be used during your course of study. It is recommended that you do not buy any tools or

protective clothing for any course before you attend the first class session Tool costs vary greatly—from $10 the first semester for welding tools to $200 for construction technology equipment. Total first-year tool costs range from $15 for operating room technician students to $260 for construction students. Prospective students should contact the Office of Admissions and Records for a list of estimated costs for each program. It should be emphasized that these tools will be your personal property, an investment you will use with pride throughout your career

Transcripts

There is a charge of $1 00 for each transcript of academic record requested by a student

Graduation Fee

A graduation fee of $5 00 is assessed each student during the semester prior to graduation to cover the cost of a diploma or certificate.

Veterans Information

The College has been approved by the Veterans Administration for the education and training of veterans. A Veterans' Representative is available at the Office of Admissions and Records for counseling and assistance.

Veterans desiring advance payment should file an application for advance payment with the Office of Admissions and Records, together with a copy (not the original) of their DD214, and, if applicable, their marriage certificate and children's birth certificates This should be filed approximately two months before enrolling Veterans not desiring advance payment should follow the same procedure, except they may file at the time of registration Application forms are available at the Office of Admissions and Records or from the Veterans Affairs Office in the student's county

FINANCIAL AID

Recognizing that the cost of education is often greater than the student and his family can afford without help, the Financial Aid Office operates to help students obtain financial assistance through a variety of aid programs:

- Grants
- Scholarships
- Loans
- College Work-Study Program
- Veteran's Benefits
- Social Security Benefits
- Vocational Rehabilitation Sponsorship
- Part-Time Employment

Every student is encouraged to thoroughly explore each of the programs described below, and to contact the Financial Aid Office for assistance in obtaining and completing applications for aid

Grants

Sometimes called "scholarships," awards of this type are based upon individual financial need rather than grades or high-school class standing These awards are not subject to later repayment

Students should submit applications, which can be obtained from guidance counselors or from the Financial Aid Office, for any or all of the following Grant programs:

Basic Educational Opportunity Grant (B.E.O.G.)

This is a Federal grant program in which awards range from a minimum of $200 to a maximum of $1400 per year Presently, only students entering post-high school education for the first time after April 1, 1973, are eligible to apply It is anticipated that the regulation regarding this April 1, 1973, date may be removed with the 1976/77 year.

Pennsylvania Higher Education Grant

These awards are made to financially eligible Pennsylvania residents who enroll as full-time students in programs of at least two years in length. The program is operated by the Pennsylvania Higher Education Assistance Agency

(P.H.E.A.A.) and these grants are commonly called "PHEAA" grants. Awards of up to $450 per year are possible for WACC students.

Out-of-State residents should check with their guidance counselor for information about a grant program which may be operated by their state.

Supplemental Educational Opportunity Grant (S.E.O.G.)

Another Federal program, the Supplemental Grant program, provides for awards ranging from $200 to $1500 per year for students of "exceptional" financial need. Students interested in being considered for an SEOG award at WACC are requested to submit an American College Testing Family Financial Statement (FFS) for use in determining financial eligibility for an award. Further information may be obtained from the College Financial Aid Office.

Scholarships

Community Organization and Union Locals

Many local organizations, such as unions, business concerns, Rotary and Kiwanis clubs, etc., participate in scholarship programs for students. Eligibility requirements vary, and often awards are limited to children of employees or members. Your high school counselor is usually a good source of information concerning local scholarship programs.

WACC Scholarships

Upon completion of two full semesters at WACC, students become eligible to apply for these scholarships, which are awarded on the basis of educational performance. Awards in the amount of $100 per eligible candidate are made.

National and Industry-Related Scholarships

Many National Professional Associations and Industry Groups have established scholarship programs for students. Awards are generally based upon academic performance in high school, and are usually given to students planning to enter an educational program which will lead to employment in the industry which established the award. Further information can be obtained by contacting your library reference section to review one or more of the many "Indexes of Student Financial Aid" on file.

Loans

Guaranteed Student Loan (G.S.L.)

Under this program, students can borrow up to $2000 per year for one through four years of education. Loan repayment does not begin until 9 months after a student graduates or leaves school. Most students qualify for an "interest subsidy," which means that the Federal Government pays the interest while the student is in school and for the 9 month period following graduation or withdrawal from classes.

Loan applications are obtained directly from your local bank or lending institution. Further information about these loans can be obtained from the Financial Aid Office.

WACC Emergency Student Loans

Students enrolled at the College are eligible to apply for these loans, which are available only to meet short-term emergency situations. Normal costs for tuition, room and board, books, etc., are not defined as emergency expenses. Further information is available in the Financial Aid Office.

College Work-Study Program (C.W.S.)

Both the College Work-Study program and the College Placement Office offer part-time employment to students. The Placement Office assists students in obtaining jobs with local businesses and industries, without regard to the student's financial circumstances.

The Work-Study Program is a form of Federal financial aid, with awards and employment being offered to students on the basis of financial need. During the academic year, students eligible for Work-Study assignments are provided with jobs at the College which are related to their educational program when possible. Students may work up to 10 hours per week, with the current pay rate being $2.10 per hour.

During the Summer, full-time jobs in the Work Study program are open to eligible students. These summer jobs are available both on the WACC campus and with off-campus employers located throughout the State of Pennsylvania Further information and applications for the College Work-Study program may be obtained from the Financial Aid Office.

NOTE: Freshmen students who have been formally notified of their acceptance to the College can participate in full-time summer Work-Study jobs during the summer before they actually enroll at the College. Contact the Financial Aid Office in February or March for further information.

Veterans' Benefits

Veterans and veterans' survivors should contact either the WACC Program to Advance Veterans Education (PAVE) office or the Veterans Administration for information about these benefits, which presently amount to $270.00 per month for single veterans, with an additional allowance made for dependents.

Dependents of disabled veterans are also eligible for benefits, and should contact their local VA office for applications and information.

Social Security Benefits

These benefits may be available to any full-time student below the age of twenty-two in instances where one parent is disabled, retired, or deceased. Contact your local Social Security Office for further information.

Vocational Rehabilitation Sponsorship

Students having a disability (diabetes, asthma, hearing loss, amputation, etc.) should contact the nearest office of the Bureau of Vocational Rehabilitation to discuss possible sponsorship for some or all of their educational costs.

Employment

Students interested in part-time employment other than the College Work-Study program, described above, should contact the College Placement Office for further information.

Special Attention

Deadlines

Students who want the fullest consideration for all awards, especially under the Supplemental Grant and College Work-Study programs, are required to have all needed application materials complete and on file in the Financial Aid Office by May 1st of the year during which they wish to receive financial aid For the 1976-77 year, for example, completed applications should be on file by May 1, 1976. Applications received after this date will be processed and students filing late will be considered for aid, but only after other applications received by the deadline have been reviewed and awards made

An exception to the above deadline is made for the Guaranteed Student Loan Program. Loan applications may be submitted at any time during the year, but should be filed early enough to allow for the 6 to 8 week processing time prior to loan approval and release of funds to the applicant

Need Analysis Forms

To determine a student's financial eligibility for awards, especially Supplemental Grants and College Work-Study awards, a review of the family financial situation must be completed

Two national groups assist Financial Aid Offices by offering "need analysis" systems: The American College Testing Corporation (Family Financial Statement) and the College Scholarship Service (Parents Confidential Statement.)

At WACC, only the American College Testing Family Financial Statement, or FFS, is used for need analysis purposes. Family Financial Statement forms can be obtained from the Financial Aid Office.

Further Information and Assistance with Applications.

Further information about all of the financial aid programs discussed above can be obtained from the Financial Aid Office at the address below. The College's Financial Aid Brochure, which provides more information about all of these programs, should be obtained at this address and used as a guide in applying for aid. For information and applications, call, write, or visit:

Financial Aid Office, WACC
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, ext. 241

CAMPUS LIFE

The time you will spend outside the classroom will be an important part of your college life. You are encouraged to participate in the social, cultural, educational, vocational, and recreational activities which augment the instructional program.

Athletics

We believe that a well-balanced program of intramural and intercollegiate sports play an important role in the overall educational program.

At present, the College has basketball, wrestling, cross-country, golf, and tennis teams that compete on an intercollegiate level.

Intramurals provide an opportunity to participate in active competition to improve physical strength and skill, to pursue leisure time activities, and to develop friendships. The Physical Education staff conducts a variety of intramural athletic leagues for men and women. Activities include basketball, bowling, golf, handball, horseshoes, soccer, softball, table tennis, touch football, track and field, volleyball, wrestling, and others.

Cheerleading

This activity is under the direction of a faculty member. Announcements of tryouts are made each fall. Cheerleaders are selected on the basis of skill, poise, personality, and enthusiasm.

College Colors and Nickname

The College colors, gold and burgundy, and the nickname, Wildcats, were selected by popular vote of the students.

Clubs

New student clubs and organizations are constantly being formed The following clubs are currently recognized on the WACC campus:

Alpha Pi Delta (Architecture)
Alumni Association
Chi Gamma Iota (Veterans)
Cinema Club
Drama Club
Food Service Student Organization
Forest Technician Association
Gamma Epsilon Tau (Graphic Arts)
Horticulture Technicians Association
Inter-Club Council
Mechanical Engineering Club
Men's Residence Council
Northcentral Pennsylvania Chapter of the Construction Specifications Institute
Outing Club
Phi Beta Lambda (Business)
Sports Car Club
Spotlight Staff
Student Government Association
Student Society of Manufacturing and Engineering
Varsity Club
Wildcat Band
Yearbook Staff

Publications

The Spotlight is the official College newspaper published at regular intervals throughout the college year Staff positions are open to all students

Montage is the college yearbook which provides a pictorial account of the school year with a focus on the graduating class. Practical experience in writing and editorial work is available through staff membership.

The Student Handbook provides information on student events, regulations, and student services

New Week News is a weekly newsletter which keeps the student body and faculty informed on current issues, announcements, programs, and activities that affect the College.

Social and Cultural Events

The Student Government Association sponsors dances, Fall and Spring Weekend events, plus other social and cultural events

Student Government

The Student Government Association is the student governing body of the College. Its purpose is to provide maximum opportunity through a democratic, representative organization for students to promote the interests of the students and of the College. It functions within a constitution originated by the students.

Wildcat Band

The Wildcat Band is a student musical group organized to play for athletic activities and campus and community events All interested students are urged to participate

POSTSECONDARY STUDENT SERVICES

Orientation

Prospective students at WACC participate in an orientation program designed to provide positive feelings about the College and to introduce them to the college community and its various services and activities. Students are placed in appropriate academic courses and registered for their first semester. This process aids the student in becoming aware of the College community and promotes involvement in various activities.

Counseling Center

The Counseling Center is available to help students with personal, academic, and career problems.
Advisors: Each student is assigned an advisor who will assist in setting up a schedule of courses. The advisor is usually an instructor in the student's program area.
Counselors: Counselors are available to aid the student in the resolution of many types of problems. Such problems may involve social, emotional, vocational, and personal concerns. The student is the focal point of the process. Any need which is perceived by the student as important will be viewed in the same way by the counselor.
Ombudsman: Student concerns which are not resolved through normal college channels can be directed to this office. The Ombudsman has direct access to the President of the College. This office is located in the Counseling Center.

Career Placement

The Placement Office maintains a file of full and part-time employment opportunities and provides employment counseling. These facilities are designed to aid the graduating student seeking employment, alumni interested in career and employment information, and students who want to work part-time while attending school.

College Transfer Placement

The College Transfer Counselor is available to advise those students who need assistance in transferring to other educational institutions.

Vocational Diagnostic Program

Making career decisions can be difficult and confusing. The Vocational Diagnostic Program offers the student a method by which he can obtain more information about himself and his abilities. It entails testing, counseling, and actual job trials. Students are given maximum exposure to those vocational directions they desire to explore. This service is available to both students and non-students. For fees and additional information write or phone:

Vocational Diagnostic Program
The Williamsport Area Community College
Williamsport, Pennsylvania 17701
(717) 326-3761, ext. 242

Health Services

A dispensary, staffed by a registered nurse, is open Monday through Friday from 8 a.m. to 3:30 p.m. First aid, health counseling, and assistance in obtaining private health care is available. Costs for private health care are the student's responsibility.

Insurance

A student sickness and accident policy is available at nominal cost. Applications may be obtained at the dispensary.

Housing

Students are responsible for making their own housing arrangements. The Coordinator of Housing is available for assistance and consultation. He maintains a list of available housing facilities for men and for women. The College does not sponsor, approve, disapprove, evaluate, or

supervise the listed facilities. An agreement for renting is solely between the landlord and the person renting.

Tot Watch

A supervised day care center is provided on campus from 8:00 a.m. to 4:00 p.m. Parents with pre-school children may use these services while attending classes. A nominal fee is charged.

ACADEMIC INFORMATION

Classification of Students

Full-Time: A full-time student must take twelve credits in an Associate Degree Program, or 360 hours or twelve credit equivalents in a Certificate Program. Sixteen hours of lecture/demonstration, or 48 hours of shop/lab equal one credit equivalent.

Part-Time: A degree or certificate candidate who carries less than twelve credits or equivalent certificate hours per semester is enrolled as a part-time student.

Adjunct. An adjunct student is one who does not go through the formal admissions process and therefore is not matriculated for a degree or a certificate. Such a student is permitted to select courses without regard to degree or certificate requirements.

Special Student. A rehabilitated or handicapped student who cannot perform some of the requirements in certain shop programs is awarded a special certificate. It is not awarded to a student who may have failed to meet the requirements of a certificate program. Prior to entrance to a program it should be determined whether or not a student will receive a special certificate upon completion of that portion of the program which the student is able to carry. The only exception to this ruling will be the student who becomes handicapped while enrolled in a certificate program.

Freshmen. Students who have completed a total of fewer than thirty credits or the equivalent are classified as freshmen.

Sophomore. Students who have completed a total of thirty or more credits or the equivalent are classified as sophomores.

Registration

All students must register for desired courses each semester during the dates and in the manner prescribed by the College. If your registration is not completed, including payment of all required fees, prior to the beginning of classes, you will not be permitted to attend class.

Credit and Semester-Hour Load

The academic year is divided into two semesters of approximately sixteen weeks each. The normal load per semester is fifteen to eighteen semester-hours or the equivalent. Students should allow an average of at least two hours preparation for each semester-hour of course work.

A student may not enroll for more than eighteen semester-hours without special permission from the Dean. A student must have earned either a 3.0 cumulative average or a 3.0 average the previous semester in order to qualify to take a course overload in either the Associate Degree programs or the Certificate programs.

Fees for students enrolling for overload credits: A student enrolled for more than 18 credits or equivalent (possible only upon approval of the Dean) will be charged the current student tuition rate per credit or credit equivalent for each credit over eighteen. This charge is determined by the student's official place of residence. (See Tuition and Fees.)

Change of Course

Dropping a Course: A college course may be dropped up to and including the tenth week of work with a grade of W. If the course is dropped beyond the ten-week period, a grade of W or WF will be awarded, depending upon the approval of the respective instructor and the Dean. No credit will be given for a W grade; a WF grade affects the student's grade-point average in the same manner as an F.

Adding a Course: A student may add a course during the first week of classes by having his advisor complete a "Request for Change of Course" form.

The approval of the appropriate Division Director(s) must be obtained before a change can be made.

Repeating a Course

Students may repeat a course in which they earned a grade of D or F. However, they must improve the grade of the repeated course to affect their cumulative grade-point average, in which case both grades will appear on the permanent record card with the higher grade used in calculating the cumulative grade-point average. If a student repeats a course and earns a second D or F, the second grade and credits will not be used in calculating the cumulative grade-point average.

Cumulative Average Computations for Students Who Re-Enroll at WACC

If a student drops out of The Williamsport Area Community College for a period of at least two academic years and applies for admission and re-enrollment in the same program of study, the previous cumulative average is dropped. However, all previous grades remain on the transcript.

Auditing a Course—Full-Time Student

With the consent of the instructor and the Dean, a full-time student may enroll as an auditor in any course that has not exceeded its enrollment quota. However, if a laboratory fee is involved, the student must pay the required fee. Auditors are not required to take examinations and do not receive credit for the course.

Grading System

The college uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade		Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	—
WF	Withdrawn Failing	0
I	Incomplete	—
AU	Audit	—

If a student is awarded a letter grade of "I," the instructor will submit a letter with the student's grade card stating what the student must do to complete the work and remove the "I." The instructor will also set a deadline, prior to the end of the semester following the awarding of the incomplete, for the required work to be completed Copies of the letter will be sent to the student and his advisor A permanent F will be recorded if the work is not completed within the prescribed time.

A student's grade-point average is computed by dividing the number of grade points by the total number of credits or certificate hours for which the student has earned a grade of A, B, C, D, F, or WF.

Advanced Placement Credit

Students who have completed advanced academic courses in high school, military service, or other education or training institutions and pass appropriate placement examinations will be given advanced placement consideration. The student must submit a written request to the appropriate Division Director for advanced placement no later than the end of the first week of classes after a student officially enrolls in the College

We recognize skills-training received by students at area vocational-technical schools To verify the degree of skill a student has attained, the College may grant credit on the placement exams or evaluation of previous vocational work. Up to the equivalent of two semesters of credit (academic, shop, or lab) may be granted toward such advanced placement

Credit by Examination

Students may earn credit by examination through the College Level Examination Program or may challenge any college course by examination. Students who have completed at least one semester at The Williamsport Area Community College with a grade-point average of at least 2.0 may earn credit by examination. Application to take a course by examination should be made in writing to the appropriate Division Director. Approval must then be given by the instructor(s) of the course involved and the Division Director.

If the approval is received, a fee of $25 must be paid at the Business Office prior to each examination.

The examination is prepared, administered (at the time set by the Division Director) and evaluated by the instructor(s) of the course involved. No examination will be prepared or administered until the student presents the $25 receipt.

Credits for course(s) passed by examination will be entered on the student's transcript. Credit given by examination may not be used to remove a D, F, or WF grade. The examination in a specific subject may be taken only once.

Up to a maximum of 30 credits may be earned through credit by examination.

Credit for Work and/or Life Experiences

Many individuals acquire rich academic and technical experiences through working and/or living in a particular situation; students who feel their work or living experiences warrant consideration for academic credit should make application to the respective Division Director or the Dean of Postsecondary Instruction The application should include evidence and rationale as to why the credit should be granted

Up to a maximum of 30 credits may be earned for credit for Work and/or Life Experiences.

Graduation Requirements

1. The successful completion of a recommended two-year program of study at The Williamsport Area Community College leads to an Associate of Applied Science, an Associate of Arts, or an Associate of Applied Arts Degree.

To be eligible for an Associate degree from The Williamsport Area Community College, the student is expected to satisfy the following

a. Complete a recommended program of study as set forth in this bulletin. At least half of the hours, including the last semester, must be completed at the College.
b. Earn at least a C average (2.00 cumulative grade-point average).

c. Satisfy health and physical education requirements unless exempt.
d. Fulfill all financial obligations to the College.

2. Certificates will be awarded for the satisfactory completion of courses designed for a specific program as listed in the bulletin.

To be eligible for a Certificate from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this bulletin. At least half of the hours, including the last semester, must be completed at the College.
b. Earn at least a C average (2.00 cumulative grade-point average).
c. Fulfill all financial obligations to the College.

3. If, after completing your final semester, you lack some credits required for a degree or certificate, you may, with approval of the Dean, be permitted to take up to six semester credit hours from another college to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Only grades of C or better are acceptable for such transfer credit.

Progress Reports

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester. Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or summer session.

The Dean's Honor List

The honor list is announced by the Dean at the completion of each semester. The list will include only those full-time students who have a grade-point average of 3.30 or better.

Withdrawal from College

If a student finds it necessary to withdraw from the College for any reason, the student must:

1. Officially withdraw by reporting to the advisor and Counseling Center to obtain and complete the necessary withdrawal froms.
2. Satisfactorily account for all property issued by the College.
3. Settle all outstanding College obligations.

If a student does not officially withdraw from the College in the prescribed manner, the grade of WF will be awarded in all courses.

Student Conduct

On admission to The Williamsport Area Community College you accept unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus is available in the Student Handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of, or being under the influence of, alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a grade of F. For a second offense, the student may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the

incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

Attendance Regulations

Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed by reason of absence, regardless of the cause, must be made up to the satisfaction of the instructor. Students who know that they will be absent are expected to get assignments from instructors in advance so that the necessary work will be completed before the student leaves or immediately upon his return. This applies to absences for college activity trips as well as absences for other reasons. In all cases of anticipated absence, students should confer with their instructors in advance whenever possible.

Academic Probation

Any degree or certificate candidate whose cumulative grade-point average is below 2.00 will be placed on academic probation. A student on probation will be required to report to the Counseling Center for special counseling before being allowed to register for classes the following semester. A student may be dropped from the College unless the following grade-point average is earned.

Beginning of:	Cumulative Grade-Point Average
Second Semester	1.50
Third Semester	1.80
Fourth Semester	1.90

Students are encouraged to seek consultation on academic matters with their advisor or a college counselor.

Final Examinations

Final examinations are scheduled at designated times at the end of each semester. The schedule normally provides for an examination period for each course. A student who is absent from a final examination without good reason is subject to a failing grade.

COMMUNITY EDUCATION

Community Education is one of the major functions of The Williamsport Area Community College. The Community Education Center is an integral part of the College, designed to extend the resources of the College to the community. Its purpose is: 1. to provide low-cost lifetime learning opportunities, cultural and personal enrichment, recreation and career training or up-grading for adults from the college community; 2. to provide special training, employee up-grading, or other educational programs on or off-campus designed to meet the needs of community organizations, professional associations, business, industry, institutions, prisons, and government agencies.

The Community Education Center, in addition to offering short, hourly mini-courses and career courses, provides special programs and services through workshops, lectures, seminars, contract programs, consultations and conferences to meet the immediate needs of the communites served.

Some typical illustrations of the services available are: Manpower Training programs, prison, police, fire, in-plant, and other special career programs, as well as such courses as homemaking, business, computer science, recreational and cultural, technical and trade, personal development, and current issues and topics.

Information concerning such course and program offerings is available prior to each term or at the beginning of a new program.

Additional information is available through the Assistant Dean for Community education, (717) 326-3761, ext. 231.

Community Education Tuition

The sponsor district students and sponsor districts shall each pay 50¢ per hour for hourly Community Education/Continuing Education courses which are academic, vocational and/or pre-career in nature. The student will pay a $1.00 per hour fee for such courses that do not fit the above classifications and are purely leisure/recreational and/or special personal interest courses. The sponsor districts will not be billed for these designated courses.

DEVELOPMENTAL STUDY

Developmental Studies are designed to assist students in building basic learning skills which will help them complete regular courses more successfully. Developmental courses are offered in basic mathematics, basic English, and reading and study skills. These courses are taught on an individualized basis and designed to improve and develop each student's basic skills. The individualized teaching environment provides an opportunity to improve student motivation, develop positive attitudes toward learning, and acquire learning skills necessary for the completion of more advanced programs.

Both the older adult who has been away from formal learning for a period of time and the recent high school graduate who experiences learning difficulties will benefit from Developmental Studies. A student can enroll simultaneously for developmental courses and courses in any program of study.

ASSOCIATE DEGREES

You can earn one of three Associate degrees at The Williamsport Area Community College. All of them can be used to help you gain immediate employment or to serve as the base from which you can pursue further studies. Flexibility in each degree program gives you maximum freedom in meeting your individual needs.

The Associate of Applied Science (AAS) degree program is not specifically designed for transfer. But, more and more four-year colleges are accepting AAS degrees in full or partial transfer credit toward a bachelor's degree.

The Associate of Arts (AA) is a program primarily designed to parallel the first two years work at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree.

The Associate of Applied Arts (AAA) is offered in Broadcasting and Journalism. The degree is not designed for transfer but colleges accept partial or full transfer credit toward a Bachelor's degree.

Associate of Applied Science

If you want to gain knowledge, proficiency, and skills in a particular technical, career, or vocational area, you can earn an Associate of Applied Science degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Science (AAS) degrees in the following areas:

Building Technologies
- Carpentry & Building Construction Technology

Business & Computer Science
- Accounting
- Business Management
- Computer Science Technology
- Industrial Technology
- Secretarial Science
  - (Executive, Legal, Medical)

Earth Science
Forest Technology
Ornamental Horticulture Technology—Floriculture
Ornamental Horticulture Technology—Nursery Management

Electrical/Electronics
Electrical Technology
Electronics Technology

Engineering & Design Technologies
Architectural Technology
Civil Engineering Technology
Engineering Drafting Technology
Graphic Arts
Technical Illustration
Tool Design Technology
Toolmaking Technology

Mathematics, Science, and Allied Health
Dental Laboratory Technician*
Food & Hospitality Management
Radiologic Technology

Transportation Technologies
Automotive Technology

*Given at Lewisburg Penitentiary only

For Graduation Requirements see page 20

Associate of Arts

General Studies

The Associate of Arts in General Studies is the degree usually completed by students who wish to transfer to a four-year institution or senior college offering the last two years of study toward a four-year degree. The AA Degree allows considerable flexibility in course selection for transfer of credits regardless of your field of concentration. It is strongly recommended that you contact the admissions office of the institution to which you wish to transfer for its recommendations in selecting your courses. You and your WACC advisor can then plan a tentative program at WACC that will be within the broad outline of the specific four-year degree in which you are interested.

The minimum requirements for the Associate of Arts are 64 credits of courses at the 100 level, or above, as follows:

	Credits
English/Humanities	9
Social Sciences	9
Mathematics	6
Natural Sciences	6-8
Physical Education & Health	4
	34-36
Electives (with suggested specialized concentration)	30
	64-66

For Graduation Requirements see page 20.

College and University Transfer Programs

These programs are designed to be transferable into four-year college degree programs. The College and University Transfer Programs allow considerable flexibility in course selection regardless of your field of concentration. It is strongly recommended that you contact the transfer counselor at WACC for his recommendation in course selection. Your and your advisor can then plan a program at WACC that meets your needs and satisfies specific transfer requirements.

Programs are available in the following areas

Biology
Business Administration
Chemistry
Economics
English
History
Liberal Arts/Humanities
Preparation for Elementary School Teaching
Preparation for Secondary School Teaching
Preparation for Social Work
Preparation for Vocational Teaching
Psychology

The minimum requirements for this program are the same as those for an Associate of Arts in General Studies.

Pre-Professional: The College offers the opportunity to start a number of specialized programs at WACC and complete them at a four-year college. You should plan your courses according to the

THE WILLIAMSPORT AREA COMMUNITY COLLEGE
1005 West Third Street
Williamsport, PA. 17701

ERRATA SHEET

Please make the following corrections in your copy of the 76/77 Catalog.

pg. 25 Individual Studies Requirements. Change to: 60 credits of Associate Degree level work. Courses do not need to fulfill General Studies requirements; 15 credits may be in Applied Science courses. Full-time students must complete four credits of Physical Education, bringing the total number of required credits to 64. Part-time students may be exempted from this requirement.

pg. 28 CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY (CB)
Third Semester: Change ECO 11 to Basic Economics instead of Basic Electronics.

pg. 30 BUSINESS MANAGEMENT (BM)
Fourth Semester: Change ECO 210 to ECO 201.

pg. 39 ARCHITECTURAL TECHNOLOGY (AT)
First Semester: Change AT 11 to Statics instead of Statistics.

pg. 42 MACHINIST GENERAL (MG)
ENG 01 Communications I will be given in the First Semester.
MAT 10 Technical Mathematics I will be given in the Second Semester.

pg. 42 MECHANICAL DRAFTING (MD)
Second Semester: Change ED 12 to read 32 hrs. instead of 48 hrs.
Total hrs. for Second Semester should read 464 hrs.

pg. 44 SIGN PAINTING (SP)
MAT 10 Technical Mathematics I will be given in the First Semester.
ENG 01 Communications I will be given in the Second Semester.

pg. 47 FOOD SERVICE MANAGEMENT (FM)
Second Semester: Change BUS 210 to BUS 201.

pg. 49 AUTO BODY REPAIRMAN (AB)
MAT 10 Technical Mathematics I will be given in the First Semester.
ENG 01 Communications I will be given in the Second Semester.

pg. 50 AUTOMOTIVE MECHANICS (AM)
MAT 10 Technical Mathematics I will be given in the First Semester.
ENG 01 Communications I will be given in the Second Semester.

pg. 52 DIESEL MECHANICS (DM)
MAT 10 Technical Mathematics I will be given in the First Semester.
ENG 01 Communications I will be given in the Second Semester.

pg. 57 Change AC 11 GENERAL AIRFRAME AND POWERPLANT to read 408 hrs. (196-212) instead of 408 hrs. (192-212).

pg. 71 Add GEO 101 PHYSICAL GEOGRAPHY. Introduction to topographic maps, landforms, weather elements, climates, soils, and vegetation. 3 Cr. (3-0).

pg. 74 Add MAT 11 BASIC ALGEBRA. Fundamental concepts of arithmetic and algebra: functions and graphs, special products and factoring; fractions, roots and exponents: systems of linear equations: introduction to statistics: other selected topics. 3 Cr. (3-0), 48 Hrs.

requirements of the four-year college to which you may wish to transfer. Transfer programs can be started at WACC in the following areas:

- Pre-Dentistry
- Pre-Law
- Pre-Medicine
- Pre-Ministerial Study
- Pre-Nursing
- Pre-Occupational Therapy
- Pre-Optometry
- Pre-Pharmacy
- Pre-Veterinary Medicine

The minimum requirements for this program are the same as those for an Associate of Arts in General Studies.

Individual Studies

Want to add a new dimension to your degree program? Individual Studies programs are designed to give you flexibility in planning your course of study. Students who wish to combine study in a technical or applied science field with general studies may elect fifteen (15) credits in Applied Science courses. If you are unsure of your future goals, interested in personal enrichment, or want to explore a technical career, the Individual Studies program provides the most flexibility.

The minimum requirements for this program are the same as those for an Associate of Arts in General Studies.

Electives: Fifteen (15) credits may be selected from Applied Science courses. These courses need not be at the 100 level.

If later you should want to earn an Associate of Arts in a specific program, you would only have to re-matriculate and complete the minimum number of courses required for that particular program.

Associate of Applied Arts

If you want to gain knowledge, proficiency, and skills in a particular vocational or career area, you can earn an Associate of Applied Arts degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Arts (AAA) degrees in the following areas:

Communications, Humanities, and Social Sciences

- Broadcasting
- Journalism
- Library Science

For Graduation Requirements see page 20.

CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and are heavily skills oriented They are not primarily designed for transfer but in certain cases can be transferred to some colleges Certificate programs require the equivalent of two to four semesters of full-time course work in which you must maintain a 2.0 grade-point average.

A new feature of these Certificate in Special Field of Study programs is the Optional Elective As the name implies an Optional Elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

Certificates are offered in the following areas:

Building Technologies
- Construction Carpentry
- Plumbing and Heating

Business and Computer Science
- Clerical Studies
- Computer Operator

Earth Science
- Service & Operation of Heavy Construction Equipment

Electrical/Electronics
- Electrical Construction
- Office Machine Repairman

Engineering & Design Technologies
- Machinist General
- Mechanical Drafting
- Printing
- Sheet Metal
- Sign Painting
- Welding

Mathematics, Science & Allied Health
- Food Service Management*
- Operating Room Technician
- Practical Nursing

Transportation
- Auto Body Repairman
- Automotive Mechanics
- Aviation Maintenance Technician
- Diesel Mechanics

*Given at Lewisburg Federal Penitentiary only

DIVISIONS AND PROGRAMS

BUILDING TECHNOLOGIES
Division Director, George C. Krause

- Carpentry & Building Construction Technology (CB)
- Construction Carpentry (CC)
- Plumbing and Heating (PL)

BUSINESS & COMPUTER SCIENCE
Division Director, Dr Donald B. Bergerstock

- Accounting (BA)
- Business Management (BM)
- Clerical Studies (BT)
- Computer Operator (CO)
- Computer Science Technology (CS)
- Industrial Technology (IT)
- Secretarial Science (BS):
  - Executive
  - Legal
  - Medical

College & University Transfer Program
- Business Administration

COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
Division Director, James E. Logue

- Broadcasting (BR)
- Journalism (JO)
- Library Assistant (LS)

College & University Transfer Programs
- Economics
- English
- History
- Liberal Arts/Humanities
- Pre-Law
- Pre-Ministerial Study
- Pre-Occupational Therapy
- Preparation for Elementary School Teaching
- Preparation for Secondary School Teaching
- Preparation for Social Work
- Preparation for Vocational Teaching
- Psychology
- Social Science
- Sociology

Service Courses
- Art
- Education
- Government
- Philosophy

EARTH SCIENCE
Division Director, Joseph G. Sick

Forest Technology (FR)
Heavy Construction Equipment Service & Operation (SO)
Ornamental Horticulture Technology (OH):
Floriculture (FL)
Nursery Management (NM)

ELECTRICAL / ELECTRONICS
Division Director, Donald O. Young, Sr.

Electrical Construction (EW)
Electrical Technology (EL)
Electronics Technology (ET)
Office Machine Repairman (OR)

ENGINEERING & DESIGN TECHNOLOGIES
Division Director, Paul L. McQuay

Architectural Technology (AT)
Civil Engineering Technology (CT)
Engineering Drafting Technology (ED)
Graphic Arts (GA)
Machinist General (MG)
Mechanical Drafting (MD)
Printing (GP)
Sheet Metal (SM)
Sign Painting (SP)
Technical Illustration (TI)
Tool Design Technology (TD)
Toolmaking Technology (TT)
Welding (WE)

MATHEMATICS, SCIENCE & ALLIED HEALTH
Division Director, Ronald E. Thompson

Dental Laboratory Technician (DL)*
Developmental Studies (LC)
Food & Hospitality Management (FH)
Food Service Management (FM)*
Operating Room Technician (OT)
Practical Nursing (NU)
Radiologic Technology (RT)

College & University Transfer Programs
Biology
Chemistry
Mathematics
Physics
Pre-Dentistry
Pre-Medicine
Pre-Nursing
Pre-Optometry
Pre-Pharmacy
Pre-Veterinary Medicine

Service Courses
Environmental Science
Geology

TRANSPORTATION TECHNOLOGIES
Division Director, John Hammond

Auto Body Repairman (AB)
Automotive Mechanics (AM)
Automotive Technology (AU)
Aviation Maintenance Technician (AC)
Diesel Mechanics (DM)

COMMUNITY DEVELOPMENT & PHYSICAL EDUCATION
Director of Community Development & Coordinator of Physical Education, Thomas E. Vargo

Service Courses
Health & Physical Education

COMMUNITY EDUCATION
Assistant Dean, Dr. Vincent De Sanctis

Programs & Courses

*Given at Lewisburg Penitentiary only

BUILDING TECHNOLOGIES

CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY (CB) ASSOCIATE DEGREE/TWO YEARS

This program covers the theoretical and practical aspects of light building construction It also explores the principles and techniques of light-frame carpentry and masonry with emphasis on design, construction, cost estimation, and management

Types of Jobs: Positions leading to foreman, building technician, or construction superintendent
Required High School Subjects: Algebra and Geometry, one year of science
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
CB	10	Woodworking for Carpenters	4
CB	11	Construction Carpentry	4
MAT	103	College Algebra	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
CB	24	Estimating and Blueprints	2
CB	25	Block Construction	6
MAT	104	College Trigonometry	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
CB	30	Roof-framing Theory	3
CB	34	Brick Construction	5
EL	14	Electricity for the Trades	3
ECO	11	Basic Electronics	
		or	3
ECO	201	Principles of Economics	
PHY	21	Physics-Mechanics	4
			18

FOURTH SEMESTER

			Credits
CB	40	Advanced Carpentry	4
CB	42	Building Construction Tech	6
CB	44	Concrete Construction	3
		Elective-General*	3/4
			16/17

CONSTRUCTION CARPENTRY (CC) CERTIFICATE/TWO YEARS

Students in this program receive laboratory instruction on the proper use of hand tools, portable power tools and portable power equipment, and become licensed in the use of power activated tools. The necessary classroom theory on methods, procedures, and materials is given. The program includes working on the construction of a residential building under supervision of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities to journeyman, master, or foreman, also employment in plants or factories where building units, components, or building materials are made or sold

FIRST SEMESTER

			Hours
CC	51	Concrete and Block (8 weeks)	200
CC	61	Brick and Stone (8 weeks)	200
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			496

SECOND SEMESTER

			Hours
CC	52	Framing and Sheathing (8 weeks)	200
CC	62	Exterior Finish (8 weeks)	200
AT	25	Basic Arch Drafting	96
			496

THIRD SEMESTER

			Hours
CC	53	Interior Finish (8 weeks)	176
CC	63	Interior Trim (8 weeks)	176
CC	73	Blueprints and Specifications	48
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
CC	54	Specialty & Related Trades (8 weeks)	152
CC	64	Practical Construction Experience (8 weeks)	152
CC	74	Building Trades Estimating	48
CC	84	Personal & Job Orientation	48
		Optional Elective	0/48
			400/448

PLUMBING AND HEATING (PL) CERTIFICATE/TWO YEARS

The student is taught the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. The fundamentals of communications and mathematics are also covered. Training is provided in all types of plumbing and heating repair work as it applies to residential, institutional, and commercial applications.

Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and shipbuilding industries.

FIRST SEMESTER

			Hours
PL	10	Plumbing and Heating I (8 weeks)	192
PL	15	Plumbing and Heating II (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
PL	20	Plumbing and Heating III (8 weeks)	192
PL	21	Plumbing and Heating IV (8 weeks)	192
ENG	01	Communications I	48
EL	14	Electricity for the Trades	80
			512

THIRD SEMESTER

			Hours
PL	30	Plumbing and Heating V (8 weeks)	192
PL	31	Plumbing and Heating VI (8 weeks)	192
WE	01	Acetylene Welding	80
		Optional Elective	0/48
			464/512

FOURTH SEMESTER

			Hours
PL	40	Plumbing and Heating VII (8 weeks)	192
PL	41	Plumbing and Heating VIII (8 weeks)	192
WE	02	Electric Welding	80
		Optional Elective	0/48
			464/512

BUSINESS AND COMPUTER SCIENCE

ACCOUNTING (BA) ASSOCIATE DEGREE/TWO YEARS

This program provides a broad business background with specialization in accounting. It begins on the elementary levels of accounting and business and advances to more complex levels.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BA	12	Accounting I	3
BM	13	Principles of Business	3
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
BA	22	Accounting II	3
BM	24	Office Procedures	2
BM	33	Business Organization and Management	3
CS	03	Intro. to Data Processing	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BA	32	Intermediate Accounting I	3
BA	42	Cost Accounting	3
BM	31	Business Law I	3
CS	05	Business Computer Programming	3
BM	21	Business Communications	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
			18

FOURTH SEMESTER

			Credits
BA	44	Intermediate Accounting II	3
BA	45	Income Tax Accounting	3
BM	41	Business Law II	3
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			15/16

BUSINESS MANAGEMENT (BM) ASSOCIATE DEGREE/TWO YEARS

This program provides basic business knowledge and covers management theory and application procedures, business concepts, and the effect of business on the economy.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BA	12	Accounting I	3
BM	13	Principles of Business	3
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I or	3
ENG	101	English Composition I	
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
BA	22	Accounting II	3
BM	24	Office Procedures	2
BM	33	Business Organization and Management	3
CS	03	Intro to Data Processing	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BM	31	Business Law I	3
BM	36	Marketing	3
CS	05	Business Computer Programming	3
BM	21	Business Communications	3
PSY	101	General Psychology or	3
SOC	101	Introduction to Sociology	
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
BA	45	Income Tax Accounting	3
BM	41	Business Law II	3
BM	45	Finance	3
ECO	210	Principles of Economics	3
		Elective-General*	3/4
			15/16

CLERICAL STUDIES (BT) CERTIFICATE/ONE YEAR

This program provides the fundamentals of typewriting, business machine calculation, and clerical procedures. It also covers indexing principles, filing, and basic office techniques.

Types of Jobs: Clerk-typist, business machine operator, filing, general clerical, elementary accounting work, shorthand transcription

FIRST SEMESTER

			Hours
BM	14	Office Machines	64
BS	15	Typewriting I	80
BS	17	Clerical Procedures	160
ENG	01	Communications I	48
			352

SECOND SEMESTER

			Hours
BM	21	Business Communications	48
BM	23	Business Mathematics	48
BS	27	Clerical Workshop	176
BS	21	Typewriting II	80
			352

COMPUTER OPERATOR (CO) CERTIFICATE/ONE YEAR

This program trains the student in all aspects of data processing operations and the effective utilization of the equipment. The student is prepared for entry into industry as a qualified computer operator and related technician. This program provides an option for those students who have an interest and aptitude for a data processing career, but do not desire to be programmers.

Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives

FIRST SEMESTER

			Credits	Hours
CO	10	Basic Computer Operations	4	96
CO	11	Computer Operations Internship I	2	96
CS	18	Fundamentals of Computer Science	3	48
BA	12	Accounting I	3	48
BS	09	Typewriting	1	48
ENG	11	Language & Composition I	3	48
			16	384

SECOND SEMESTER

			Credits	Hours
CO	20	Advanced Computer Operations	4	64
CO	21	Computer Operations Internship II	2	96
CO	22	Computer Technology	3	48
CS	20	Support Systems	3	48
BM	24	Office Procedures	2	64
ENG	13	Technical Writing	3	48
			17	368

COMPUTER SCIENCE TECHNOLOGY (CS) ASSOCIATE DEGREE/TWO YEARS

This program trains the student in various computing systems in electronic data processing It provides a broad range of knowledge of programming techniques and experience in operation of computer systems and peripheral data processing equipment. The curriculum offers a secondary background in business accounting and management or math and science.

Types of Jobs: Computer programmer, junior systems analyst, sales representative, related technician.
High School Subjects Required: Two units of mathematics including Algebra.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
CS	18	Fundamentals of Computer Science	3
CS	19	Compiler Language I-Fortran	3
BA	12	Accounting I	3
ENG	11	Language & Composition I	3
MAT	100	Introduction to Mathematics I	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
CS	20	Support Systems	3
CS	27	Assembler Language I	4
ENG	12	Language & Composition II	3
MAT	200	Introduction to Mathematics II	3
PE		Physical Education	1
		Elective-Math/Science or Elective-Business	3/4
			17/18

THIRD SEMESTER

			Credits
CS	33	Systems Development and Applications I	3
CS	35	Compiler Language II-COBOL	4
CS	37	Assembler Language II	4
MAT	201	Elementary Statistics I	3
		Elective-Math/Science or Elective-Business	3/4
			17/18

FOURTH SEMESTER

			Credits
CS	41	Data Management	3
CS	42	Numerical Programming Methods	3
CS	43	Systems Development and Applications II	3
		Elective-Math/Science or Elective-Business	3/4
		Elective-General*	3/4
			15/17

INDUSTRIAL TECHNOLOGY (IT)

The Associate Degree in Industrial Technology is especially geared to the employed person who wishes to upgrade himself, either for personal or professional reasons.

This program has been designed to be flexible, it can be tailored to fit the student's personal requirements as they relate to present employment and long-term career plans.

A minimum of sixty credits, carefully selected by the student and his advisor, will qualify the student for the Associate Degree. As many as thirty credits may be awarded by advanced placement, credit by examination, or life experience; thus eliminating much of the course work to be completed on campus.

The minimum requirements for the Associate Degree in Industrial Technology are

	Credits
English	6
Mathematics	9
* Natural Sciences	6/8
Social Sciences and Humanities	12
**Electives	27
	60/62

Final approval of all courses will be given by the advisor and Division Director

*Natural Science credits in excess of six may be substituted as electives

**Courses should be geared primarily toward the student's vocational goals and/or a specialized area of concentration.

SECRETARIAL SCIENCE (BS)-EXECUTIVE ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in executive secretarial skills with a background in liberal studies

Types of Jobs: Business office in commerce, government, industry or the professions
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
BS	14	Shorthand I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			18

SECOND SEMESTER

			Credits
BS	21	Typewriting II	3
BS	23	Office Practice	2
BS	24	Shorthand II	3
ENG	211	Fundamentals of Speech	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BM	13	Principles of Business	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	7
BM	21	Business Communications	3
			16

FOURTH SEMESTER

			Credits
BM	33	Business Organization and Management	3
BS	44	Secretarial Workshop	9
BS	45	Office Internship	1
		Elective-General*	3/4
			16/17

SECRETARIAL SCIENCE (BS)-LEGAL ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in legal secretarial skills with a background in liberal studies.

Types of Jobs: Business, commerce, and law
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
BS	14	Shorthand I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			18

SECOND SEMESTER

			Credits
BS	21	Typewriting II	3
BS	23	Office Practice	2
BS	24	Shorthand II	3
ENG	211	Fundamentals of Speech	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BM	31	Business Law I	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	7
BM	21	Business Communications	3
			16

FOURTH SEMESTER

			Credits
BM	41	Business Law II	3
BS	44	Secretarial Workshop	9
BS	45	Office Internship	1
		Elective-General*	3/4
			16/17

SECRETARIAL SCIENCE (BS)-MEDICAL ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in medical secretarial skills with a background in liberal studies.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
*BA	11	Elementary Accounting	3
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
BS	14	Shorthand I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			18

SECOND SEMESTER

			Credits
BS	21	Typewriting II	3
BS	23	Office Practice	2
BS	24	Shorthand II	3
ENG	211	Fundamentals of Speech	3
BIO	25	Anatomy and Physiology	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	7
BM	21	Business Communications	3
ST	30	Medical Terminology	3
			16

FOURTH SEMESTER

			Credits
BS	44	Secretarial Workshop	9
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
BS	45	Office Internship	1
		Elective-General*	3/4
			16/17

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCES

BROADCASTING (BR) ASSOCIATE DEGREE/TWO YEARS

Announcers and newsmen from nearby radio stations will assist the faculty in teaching modern broadcasting techniques using the College's radio studio and television system. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
BS	15	Typewriting I	3
BR	10	Introduction to Announcing	3
ENG	101	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government-National	3
			15

SECOND SEMESTER

			Credits
BR	16	Newswriting for Broadcasters	3
BR	17	Basic Electronics & FCC Licensing	3
BR	21	In-Service Training I	2
GOV	202	State & Local Government	3
SOC	101	Introduction to Sociology	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BR	18	Advanced Announcing	3
BR	19	Radio Programming	3
BR	22	In-Service Training II	2
ECO	11	Basic Economics	3
PE		Physical Education	1
		Elective-General*	3
			15

FOURTH SEMESTER

			Credits
BR	14	Station Management & Community Responsibility	3
BR	23	In-Service Training III	2
BR	20	Broadcast Advertising	3
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
		Elective-General*	3
			17

JOURNALISM (JO)
ASSOCIATE DEGREE/TWO YEARS

Practical courses in news and feature story writing, news photography, editing, copy writing, and community responsibility are taught with the help of area newsmen. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Newspaper reporter, advertising copywriter, public relations assistant, news photographer, magazine research assistant
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BS	15	Typewriting I	3
JO	10	News Writing	3
ENG	201	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government-National	3
			15

SECOND SEMESTER

			Credits
JO	11	Photography for Newsmen	2
JO	12	News Reporting	3
JO	21	In-Service Training I	2
GOV	202	State & Local Government	3
SOC	101	Introduction to Sociology	3
		Elective-General*	3
			16

THIRD SEMESTER

			Credits
JO	13	Feature Writing	3
JO	14	Editing	3
JO	22	In-Service Training II	2
ECO	201	Principles of Economics	3
PE		Physical Education	1
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
JO	16	Newspaper Management and Community Responsibility	3
JO	23	In-Service Training III	2
JO	30	Advertising	3
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
PE		Physical Education	1
		Elective-General*	3/4
			18/19

LIBRARY ASSISTANT (LS)
ASSOCIATE DEGREE/TWO YEARS

This program provides specialized knowledge through technical courses, and practical experience in library work through the internship program. Liberal arts courses provide a broad background which will aid in understanding and serving the needs of future library patrons.

Types of Jobs: Positions in public and special libraries, schools, colleges, industrial and commercial libraries
Required High School Subjects: One year of math, one year of science
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
LS	10	Intro to Books and Libraries	3
LS	15	Technical Services I	3
BS	15	Typewriting I	3
ENG	101	English Composition I	3
CS	03	Intro to Data Processing	3
			15

SECOND SEMESTER

			Credits
LS	30	Technical Services II	3
LS	31	Aids and Principles of Book Selection	3
ENG	102	English Composition II	3
HIS	104	Western Civilization II	3
PSY	101	General Psychology	3
			15

THIRD SEMESTER

			Credits
LS	12	Internship	3
LS	41	Introduction to Reference	3
EDU	102	Children's and Young Adult Literature	3
ENG	252	World Literature	3
PE		Physical Education	1
		Elective-Math/Science	3/4
		Elective-Social Science	3
			19/20

FOURTH SEMESTER

			Credits
LS	45	Audio-Visual Materials. Cataloging and Classification	3
LS	44	The Library Its Patrons and Purpose	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
		Elective-General*	3/4
			13/14

EARTH SCIENCE

FOREST TECHNOLOGY (FR) ASSOCIATE DEGREE/TWO YEARS

This program includes basic forestry techniques, activities and field work. It provides sufficient general academic courses and specialized forestry courses to prepare the student to occupy a responsible position between the skilled forest worker and the professional forester.

Types of Jobs: In public agencies—Forest fire control; wildlife habitat improvement, maintenance of forest roads, structures, and recreation areas; timber estimation; timber marking; stand improvement.
In private employment—Pulpwood procurement, timber estimating, planning and construction of forest roads; supervision of logging operations; location and survey of forest property lines

Required High School Subjects: Algebra and Geometry, one year of science.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
FR	11	Dendrology	3
FR	13	Forest Mensuration	3
FR	15	Forest Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
FR	21	Photogrammetry & Forest Surveying I	3
FR	26	Forest Ecology/ Wildlife Management	3
FR	28	Advanced Forest Mensuration	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			16

THIRD SEMESTER

			Credits
BM	13	Principles of Business	3
FR	32	Forest Surveying II	3
FR	33	Equipment and Machinery	3
FR	36	Timber Harvesting	3
FR	46	Silviculture	3
			15

FOURTH SEMESTER

			Credits
FR	38	Forest Production	3
FR	42	Forest Products	3
FR	48	Forest Land Management & Recreation	3
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
		Elective-General*	3/4
			15/16

HEAVY CONSTRUCTION EQUIPMENT SERVICE AND OPERATION (SO) CERTIFICATE/TWO YEARS

This program provides the student with the principles of maintaining, repairing and operating many types of construction equipment. It includes the re-building of internal combustion engines, basic surveying, and complete mechanical safety measures.

Types of Jobs: Operating, mechanical repair, service of heavy equipment. Self-employed or work with contractors, dealers, miners, and quarriers.

FIRST SEMESTER

			Hours
SO	11	Service and Operation I (8 weeks)	216
SO	12	Service and Operation II (8 weeks)	216
MAT	10	Technical Mathematics I	48
			480

SECOND SEMESTER

			Hours
SO	23	Service and Operation III (8 weeks)	192
SO	24	Service and Operation IV (8 weeks)	192
ENG	01	Communications I	48
		Optional Elective	0/48
			432/480

THIRD SEMESTER

			Hours
SO	35	Service and Operation V (8 weeks)	216
SO	36	Service and Operation VI (8 weeks)	216
		Optional Elective	0/48
			432/480

FOURTH SEMESTER

			Hours
SO	43	Service and Operation VII (8 weeks)	240
SO	44	Service and Operation VIII (8 weeks)	240
			480

ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
Floriculture (FL)
ASSOCIATE DEGREE/TWO YEARS

This program involves the business of growing, designing, and selling flowers, foliage, and related materials. It is directed toward employment with florists in planning, growing, designing, managing, and selling floral products and services

Types of Jobs: Flower propagation, flower sales, both retail and wholesale, flower shop management, assisting in plant pathology own business
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BIO	03	Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	25	Intermediate Algebra	3
OH	11	Horticulture Soils	3
OH	12	Woody Plants I	2
OH	13	Herbaceous Plants	3
			17

SECOND SEMESTER

			Credits
CHE	11	Fund of Chemistry	
		or	4
CHE	105	General Organic Chemistry	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
OH	20	Greenhouse Crop Production I	3
OH	30	Floral Design I	3
PE		Physical Education	1
			14

THIRD SEMESTER

			Credits
OH	39	Floral Design II	3
OH	31	Greenhouse Crop Production II	3
OH	37	Plant Insects and Diseases	3
OH	24	Plant Propagation	3
PE		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
OH	43	Flower Shop Operation	3
OH	41	Greenhouse Crop Production III	3
OH	46	Horticulture Mechanics	3
OH	33	House & Conservatory Plants	3
		Elective-General*	3/4
			15/16

ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
Nursery Management (NM)
ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to propagate, grow to a commercial size and profitably sell the many species and varieties of woody plants It also covers the identification of commercially important plants and the design, construction and maintenance of landscape plans and features

Types of Jobs: Growing trees and shrubs with private nurseries, nursery stock salesman or buyer, horticulturist with a governmental agency (city, state, federal), landscaping, and, ultimately, your own business
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
BIO	03	Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	25	Intermediate Algebra	3
OH	11	Horticulture Soils	3
OH	12	Woody Plants I	2
OH	13	Herbaceous Plants	3
			17

SECOND SEMESTER

			Credits
CHE	11	Fundamentals of Chemistry	
		or	4
CHE	105	General Organic Chemistry	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
OH	21	Nursery Production I	3
OH	26	Woody Plants II	3
PE		Physical Education	1
			14

THIRD SEMESTER

			Credits
OH	37	Plant Insects and Diseases	3
OH	35	Nursery Production II	3
OH	42	Woody Plants III	3
OH	24	Plant Propagation	3
PE		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
OH	45	Landscape Construction	3
OH	46	Horticulture Mechanics	3
OH	49	Landscape Design	3
OH	48	Landscape Maintenance	3
		Elective-General*	3/4
			15/16

ELECTRICAL/ELECTRONICS

ELECTRICAL CONSTRUCTION(EW) CERTIFICATE/TWO YEARS

This program stresses the manual skills needed to install wiring and electrical equipment, using blueprints, in buildings. Required courses in mathematics, science, and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical construction union apprentice, industrial maintenance, self-employment in residential and commercial wiring and in electrical shops, electrical tester or inspector, power company employee.

FIRST SEMESTER

			Hours
EL	12	Basic Wiring Lab	96
EW	11	Direct Current Fundamentals	160
EW	18	Motor Rewinding I	96
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			448

SECOND SEMESTER

			Hours
EW	21	Alternating Current Fund	160
EW	24	Basic Motor Control	96
EW	35	Residential Blueprint and Code	64
MAT	20	Technical Mathematics II	48
EL	18	Accident Prevention	32
		Optional Elective	0/48
			400/448

THIRD SEMESTER

			Hours
EW	31	Basic Electrical Construction Lab	112
EW	39	Basic Electronics for Industry	160
EW	37	Advanced Motor Control	96
PHY	20	Physics Survey	48
ED	02	Engineering Drafting	64
			480

FOURTH SEMESTER

			Hours
EW	41	Commercial & Industrial Blueprint Reading	64
EW	42	Industrial Motor Control	96
EW	44	Advanced Electrical Const.	144
EW	49	Electrical Machinery, Analysis and Repair	128
		Optional Elective	0/48
			432/480

ELECTRICAL TECHNOLOGY (EL) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to work as an electrical technologist with electronic equipment and electrical machinery. It stresses electrical basics, including theory, circuits, industrial electronics, electrical machinery, and electrical construction. Required courses in mathematics, science and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical technology and laboratory work, industrial maintenance technician, trouble shooter for electrical equipment manufacturers.
High School Subjects Required: Algebra and Geometry; one year of science.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
EL	15	Direct Current Fundamentals	5
EL	16	Basic Wiring Lab	3
EL	18	Accident Prevention	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
EL	25	Alternating Current Fund	5
EL	26	Basic Electrical Construct. Lab	2
EL	27	Residential Blueprint Reading & National Electrical Code	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
EL	38	Electric Motor Control	4
EL	39	Basic Electronics	6
PHY	21	Physics-Mechanics	4
PE		Physical Education	1
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
EL	42	Advanced Electrical Theory	3
EL	47	Electrical Systems Analysis	2
EL	48	Electrical Construction Blueprint Reading	4
ECO	11	Basic Economics	3
PHY	33	Physics-Heat and Light	4
			16

ELECTRONICS TECHNOLOGY (ET) ASSOCIATE DEGREE/TWO YEARS

This program presents basic electronics theories and their application to current practices and future developments Practical laboratory work with modern electronic equipment prepares the student to assist electronic engineers in the design, construction, installation and testing of all kinds of electronic equipment

Types of Jobs: Electronics engineering technician, electronic instrument technician, electronic lab technician, industrial electronics technician, production technician, and technical writer

High School Subjects Required: Algebra and Geometry, one year of science

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
ET	11	Electronics Theory I	5
ET	12	Electronics Applications I	3
ET	14	Electrical Circuit Analysis	3
ENG	11	Language & Composition I or	3
ENG	101	English Compositon I	
MAT	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
ET	21	Electronics Theory II	5
ET	22	Electronics Applications II	3
ET	23	Basic Electronics Circuit Analysis	3
ENG	13	Technical Writing or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ET	33	Intermediate Electronics Circuit Analysis	3
ET	34	Electronics Theory III	5
ET	37	Electronics Applications III	3
PE		Physical Education	1
		Elective-Math/Science	3/4
			15/16

FOURTH SEMESTER

			Credits
ET	47	Electronics Theory IV	5
ET	48	Electronics Applications IV	3
PE		Physical Education	1
		Elective-Electronics	3
		Elective-General*	3/4
			15/16

OFFICE MACHINE REPAIRMAN (OR) CERTIFICATE/TWO YEARS

This program trains the student to perform periodic inspections and to make repairs on different types of office machines and equipment. Related courses such as mathematics, typing, and economics provide the student with a better chance for advancement.

Types of Jobs: Typewriter, adding machine, duplicator serviceman, manufacturer's service representative, shop foreman in distribution outlet, branch manager, and self-employment

FIRST SEMESTER

			Hours
BS	09	Typewriting	48
OR	12	Office Machine Repair I	384
ENG	01	Communications I	48
			480

SECOND SEMESTER

			Hours
OR	22	Office Machine Repair II	432
MAT	10	Technical Mathematics I	48
			480

THIRD SEMESTER

			Hours
OR	32	Office Machine Repair III	432
		Optional Elective	0/48
			432/480

FOURTH SEMESTER

			Hours
OR	43	Office Machine Repair IV	432
		Optional Elective	0/48
			432/480

ENGINEERING AND DESIGN TECHNOLOGIES

ARCHITECTURAL TECHNOLOGY (AT) ASSOCIATE DEGREE/TWO YEARS

This program provides instruction in architectural drafting principles and practices and in creating residential and commercial working drawings. It includes design fundamentals, structural calculations and site planning.

Types of Jobs: Private practice, corporate departments, public bureaus, construction firms, landscape architecture firms, and engineering fields
High School Subjects Required: Algebra and Geometry, one year of science.

FIRST SEMESTER

			Credits
AT	11	Statistics	3
AT	26	Architectural Graphics I	4
AT	32	Introduction to Historic Theory in Architecture	3
AT	45	Building Materials & Methods I	3
MAT	103	College Algebra or	3
MAT	112	Calculus I	
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
AT	12	Structures I	2
AT	27	Architectural Graphics II	3
AT	28	Architectural Working Drawings	2
AT	66	Design I	4
ENG	11	Language & Composition I or	3
ENG	101	English Composition I	
MAT	104	College Trigonometry or	3
MAT	211	Calculus II	
			17

THIRD SEMESTER

			Credits
AT	13	Structures II	2
AT	46	Building Materials & Methods II	3
AT	51	Building Equipment I	3
AT	62	Site Planning	3
AT	67	Design II	4
ENG	12	Language & Composition II or	3
ENG	102	English Composition II	
			18

FOURTH SEMESTER

			Credits
AT	14	Structures III	2
AT	52	Building Equipment II	3
AT	68	Design III	4
AT	75	Professional Administration & Contract Documents	3
AT	76	Seminar	3
PE		Physical Education	1
			16

CIVIL ENGINEERING TECHNOLOGY (CT) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to assist civil engineers in the planning, designing and construction of highways, railroads, bridges, airfields, buildings, and dams Experience with modern equipment prepares the student to meet the challenge of recent technical developments.

Types of Jobs: Engineering technician, surveyor, inspector, draftsman, cartographer, design technician, and photogrammetrist
Required High School Subjects: Algebra and Geometry, one year of science
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
CT	05	Materials of Construction	2
CT	06	Engineering Drawing	3
CT	10	Introductory Surveying	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
		Elective-Social Science	3
			17

SECOND SEMESTER

			Credits
CT	20	Plane Surveying	4
CT	23	Topographic Drawing and Cartography	3
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			17

THIRD SEMESTER

			Credits
CT	30	Route Surveying	4
CT	35	Highway Engineering Tech	3
CT	34	Statics	3
PHY	21	Physics-Mechanics	4
GEL	105	Physical Geology	4
			18

FOURTH SEMESTER

			Credits
CT	40	Advanced Surveying	3
CT	46	Photogrammetry	3
CS	04	Technical Computer Program	3
CT	44	Strength of Materials	
		or	3/4
GEL	106	Historical Geology	
		Elective-General*	3/4
			15/17

ENGINEERING DRAFTING TECHNOLOGY (ED) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to make a variety of engineering drawings and calculations. It provides a broad knowledge of mechanical drafting and engineering procedures, and background skills in mathematics, science and communication

Types of Jobs: Mechanical detail and layout draftsman, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing
Required High School Subjects: Algebra and Geometry, one year of science
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
ED	21	Mechanisms (8 weeks)	4
MAT	104	College Trigonometry	3
PE		Physical Education	1
		Elective-General*	3/4
			15/16

THIRD SEMESTER

			Credits
ED	30	Detail & Assembly Drawing (8 weeks)	4
ED	31	Applied Drafting Techniques (8 weeks)	4
PHY	21	Physics-Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER

			Credits
ED	40	Advanced Detail I (8 weeks)	4
ED	41	Advanced Detail II (8 weeks)	4
PHY	33	Physics-Heat & Light	4
		Elective** (Below)	3/4
			15/16

**Electives

ED	51	Descriptive Geometry	3
MAT	112	Calculus I	4
PHY	22	Introduction to Metallurgy	4
PHY	31	Physics-Electricity/Magnetism	4
TD	21	Tool Drafting	4

GRAPHIC ARTS (GA) ASSOCIATE DEGREE/TWO YEARS

This program provides a firm understanding of highly diversified backshop operations along with management, marketing, and supervisory training. Practical laboratory work with modern graphic arts equipment gives a background in areas of composition, makeup, photo process, imposition and stripping, platemaking, presswork, and bindery.

Types of Jobs: Graphic arts executive training, in-plant supervisors, foreman, self-employed printer, marketing and technical sales service.
Required High School Subjects: Algebra and Geometry; one year of science.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
GA	13	Layout and Design	4
GA	14	Principles of Typographic Design	4
BM	13	Principles of Business	3
MAT	103	College Algebra	3
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
GA	25	Process Camera	4
GA	27	Film Assembly & Platemaking	4
ENG	101	English Composition I	3
MAT	104	College Trigonometry or	3/4
		Elective	
PE		Physical Education	1
		Elective-General*	3
			18/19

THIRD SEMESTER

			Credits
GA	34	Printing Substrates and Finishing Operations	4
GA	38	Printing Presses	4
GA	42	Printing Estimating Practices	4
		Elective-Science** (Below)	3/4
			15/16

FOURTH SEMESTER

			Credits
GA	43	Printing Production Practices	4
GA	44	Independent Study	2
CSC	101	Intro. to Computer Science	3
ENG	102	English Composition II	3
		Elective-General*	3/4
			15/16

**Electives in Science:

ESC	10	Environmental Science	3
PHY	111	Introductory Physics	4
PHY	21	Physics-Mechanics	4

MACHINIST GENERAL (MG) CERTIFICATE/TWO YEARS

This program offers training on machine tools that are common to most shops and emphasizes skill with machines. Classroom analysis of various jobs and machine operations increases the student's capabilities as a machinist. General mathematics, science, and communication skills are included to help meet the demands of modern technical developments.

Types of Jobs: Machinist, machine repair mechanic, setup man for production line work, skilled tool room mechanic

FIRST SEMESTER

			Hours
MG	10	Basic Machine Shop I (8 weeks)	200
MG	15	Basic Machine Shop II (8 weeks)	200
MAT I	10	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
MG	20	Basic Machine Shop III (8 weeks)	200
MG	25	Basic Machine Shop IV (8 weeks)	200
ENG	01	Communications I	48
			448

THIRD SEMESTER

			Hours
MG	30	Advanced Machine Shop I (8 weeks)	200
MG	35	Advanced Machine Shop II (8 weeks)	200
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
MG	40	Advanced Machine Shop III (8 weeks)	200
MG	45	Advanced Machine Shop IV (8 weeks)	200
		Optional Elective	0/48
			400/448

MECHANICAL DRAFTING (MD) CERTIFICATE/TWO YEARS

This program emphasizes drafting skills which will enable the student to produce drawings for modern industry. The student will learn the latest industrial processes to improve and enhance his drawings and insure his efficiency.

Types of Jobs: Mechanical, sheet metal, piping, or electrical draftsman, related jobs such as estimator or field erection supervisor

FIRST SEMESTER

			Hours
MD	10	Drafting Techniques I (8 weeks)	192
MD	11	Drafting Techniques II (8 weeks)	192
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			480

SECOND SEMESTER

			Hours
MD	20	Applied Drafting I (8 weeks)	192
MD	21	Applied Drafting II (8 weeks)	192
ED	12	Industrial Processes	48
MAT	20	Technical Mathematics II	48
			480

THIRD SEMESTER

			Hours
MD	30	Applied Drafting III (8 weeks)	192
MD	31	Applied Drafting IV (8 weeks)	192
PHY	20	Physics Survey	48
			432

FOURTH SEMESTER

			Hours
MD	40	Applied Drafting V (8 weeks)	192
MD	41	Applied Drafting VI (8 weeks)	192
		Optional Elective	0/48
			384/432

PRINTING (GP) CERTIFICATE/ONE YEAR

This program examines the many complex operations and occupations involved in modern printing. All printing operations are covered to insure versatility in the field.

Types of Jobs: Cameraman, stripper, layout man, compositor, platemaker, and pressman.

FIRST SEMESTER

			Hours
GP	01	Composing I	128
GP	02	Photomechanical I	128
GP	03	Press and Bindery I	128
ENG	01	Communications I	48
		Optional Elective	0/48
			432/480

SECOND SEMESTER

			Hours
GP	04	Composing II	128
GP	05	Photomechanical II	128
GP	06	Press and Bindery II	128
MAT	10	Technical Mathematics I	48
		Optional Elective	0/48
			432/480

SHEET METAL (SM) CERTIFICATE/TWO YEARS

This program stresses the principles and practices of modern metalworking. Fundamentals of the trade, the use of equipment, and general background courses enhance occupational opportunities.

Types of Jobs: Various phases of sheet metal work including the service trades, heating, air-conditioning, ventilation, manufacturing, construction, shipbuilding, and self-employment.

FIRST SEMESTER

			Hours
SM	10	Basic Sheet Metal (Hand & Machine)	400
ENG	01	Communications I	48
MAT	10	Technical Mathematics I	48
			496

SECOND SEMESTER

			Hours
SM	20	Intermediate Processes	400
ENG	02	Communications II	48
MAT	20	Technical Mathematics II	48
			496

THIRD SEMESTER

			Hours
SM	30	Basic Commercial Sheet Metal	400
			400

FOURTH SEMESTER

			Hours
SM	40	Commercial Sheet Metal	400
BM	47	Small Business Management	48
PHY	20	Physics Survey	48
			496

SIGN PAINTING (SP) CERTIFICATE/TWO YEARS

This program provides practical experience in lettering skills, design, layout and type finishing of signs and showcards. Materials, equipment, and safety practices used in painting, building, and sign erecting are stressed

Types of Jobs: Self-employment, work with sign painters, bottlers, outdoor advertisers, department stores, theatres, television stations, and truck fleets

FIRST SEMESTER

			Hours
SP	01	Basic Alphabets	400
ENG	01	Communications I	48
			448

SECOND SEMESTER

			Hours
SP	15	Letter Strokes & Showcard Layout	400
MAT	10	Technical Mathematics I	48
			448

THIRD SEMESTER

			Hours
SP	16	Commercial Showcards	400
SP	12	Gold Leaf	
		or	64
SP	13	Silk Screen	
			464

FOURTH SEMESTER

			Hours
SP	04	Commercial Signs	400
SP	14	Billboard Pictorials	
		or	64
SP	13	Silk Screen	
		Optional Elective	0/48
			464/512

TECHNICAL ILLUSTRATION (TI) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to interpret engineering drawings into three-dimensional illustrations. The program provides drawing and art skills, coupled with humanities, mathematics, and communications courses to enhance occupational opportunities

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers, illustrations for company literature, parts and sales catalogs, maintenance, repair, and assembly manuals, charts, and handbooks
Required High School Subjects: Algebra and Geometry, one year of science
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	3
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
GA	13	Layout and Design	4
ED	03	Gears and Cams	2
TI	21	Perspective Drawing	4
TI	23	Rendering I	4
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ENG	13	Technical Writing	3
TI	31	Axonometric Drawing	4
TI	33	Color	2
TI	34	Rendering II	4
PHY	21	Physics-Mechanics	4
PE		Physical Education	1
			18

FOURTH SEMESTER

			Credits
TI	40	Illustration Practice	4
TI	41	Technical Drawing	4
TI	42	Layout & Design	2
ECO	11	Basic Economics	3
		Elective-General*	3/4
			16/17

TOOL DESIGN TECHNOLOGY (TD) ASSOCIATE DEGREE/TWO YEARS

This program provides instruction in drafting and tool production techniques and in the production of tool drawings. It emphasizes planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies. The student is taught to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer, numerical programmer, design draftsman, estimator, and systems program designer.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	3
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
TD	21	Tool Drafting (8 weeks)	4
TT	04	Elementary Machine Shop I	3
ENG	12	Language & Composition II	3
MAT	104	College Trigonometry	3
PE		Physical Education	1
			18

THIRD SEMESTER

			Credits
TD	30	Cutting-tool Design (8 weeks)	4
TD	31	Fixture Design (8 weeks)	4
TT	05	Elementary Machine Shop II	3
PHY	21	Physics-Mechanics	4
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
TD	40	Gage Design and Programming (8 weeks)	4
TT	06	Elementary Machine Shop III	3
TD	41	Die Design (8 weeks)	4
ECO	11	Basic Economics	3
PHY	22	Introduction to Metallurgy	4
			18

TOOLMAKING TECHNOLOGY (TT) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to work with the engineer and shop superintendent or foreman. Laboratory and shop work provide training in machine operation and theory, blueprint reading, and mechanical drawing. Routing of jobs and the sequence of operations, as well as related courses in mathematics, science and economics are included to increase the student's advancement opportunities.

Types of Jobs: Toolmaker, experimental, numerical controller; production technician; administrative assistant.
Required High School Subjects: One year of mathematics, one year of science.

FIRST SEMESTER

			Credits
TT	10	Basic Metals I (8 weeks)	5
TT	15	Basic Metals II (8 weeks)	5
ENG	11	Language & Composition I or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	01	Mechanical Drawing	2
TT	20	Automatic Machinery (8 weeks)	5
TT	25	Industrial Metrology (8 weeks)	5
ENG	12	Language & Composition II or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			18

THIRD SEMESTER

			Credits
TT	30	Advanced Metals I (8 weeks)	5
TT	35	Advanced Metals II (8 weeks)	5
ECO	11	Basic Economics or	3
ECO	201	Principles of Economics	
PHY	21	Physics-Mechanics	4
			17

FOURTH SEMESTER

			Credits
TT	40	Abrasive Machining (8 weeks)	5
TT	45	Heat Treatment & Cutter Grinding (8 weeks)	5
PHY	22	Introduction to Metallurgy	4
PE		Physical Education	1
			15

WELDING (WE)
CERTIFICATE/TWO YEARS

This program emphasizes theory and manipulative skills. It stresses developments and techniques in electric, oxyacetylene, and inert gas shielded methods of welding.

Types of Jobs: Welder, welder operator, fitter, specialist, foreman, supervisor, and inspector

FIRST SEMESTER

			Hours
WE	15	Acetylene Welding	400
MAT	10	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
WE	25	Electric Welding	400
ENG	01	Communications I	48
			448

THIRD SEMESTER

			Hours
WE	35	Inert Gas Welding	400
ED	05	Blueprint Reading	48
		Optional Elective	0/48
			448/496

FOURTH SEMESTER

			Hours
WE	45	Advanced Welding	400
		Optional Elective	0/48
			400/448

MATHEMATICS, SCIENCE, AND ALLIED HEALTH

DENTAL LABORATORY TECHNICIAN (DL)
Special Program
ASSOCIATE DEGREE/FIVE SEMESTERS
LEWISBURG FEDERAL PENITENTIARY

FIRST SEMESTER

			Credits
DL	12	Intro to Dental Technology	5
DL	13	Dental Materials	3
MAT	100	Introduction to Mathematics I	3
ENG	101	English Composition I	3
			14

SECOND SEMESTER

			Credits
DL	22	Denture Techniques I	6
DL	23	Oral Anatomy	3
MAT	200	Introduction to Mathematics II	3
ENG	102	English Composition II	3
			15

THIRD SEMESTER

			Credits
DL	32	Denture Techniques II	6
DL	33	Odontography	4
		Related Courses as available	6
			16

FOURTH SEMESTER

			Credits
DL	42	Cast Partial Techniques I	6
DL	44	Crown and Bridge I	5
		Related Courses as available	6
			17

FIFTH SEMESTER

			Credits
DL	50	Cast Partial Techniques II	6
DL	51	Crown and Bridge II	5
			11

FOOD AND HOSPITALITY MANAGEMENT (FH) ASSOCIATE DEGREE/TWO YEARS

In preparing the student to become a manager of a food operation, hotel or motel, this program provides skills in areas of business and personnel management as well as food preparation and supervision. It provides practical experience through directed work and other community contacts.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
FH	10	Introductory Foods	3
FH	11	Nutrition	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
BM	13	Principles of Business	3
PSY	101	General Psychology	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
FH	20	Quantity Food Preparation	3
FH	21	Menu Planning & Cost Control	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
FH	22	Front Office Management and Housekeeping	3
PE		Physical Education	1
		Elective-General*	3
			16

THIRD SEMESTER

			Credits
FH	31	Hospitality Management and Theory	3
FH	32	Purchasing, Storage, and Sanitation	3
FH	33	Hospitality Merchandising	3
BM	21	Business Communications	3
		Science Elective	3/4
			15/16

PRACTICUM

FH	30	Job Experience (120 Hrs.)	No Credit

FOURTH SEMESTER

			Credits
FH	40	Equipment and Layouts	3
FH	41	Supervision, Work Simplification and Incentives	3
FH	42	Beverage Management, Catering	3
BA	11	Elementary Accounting	3
		Elective-General*	3
			15

FOOD SERVICE MANAGEMENT (FM) Special Program CERTIFICATE/ONE YEAR LEWISBURG FEDERAL PENITENTIARY

FIRST SEMESTER (16 weeks)

			Hours	Credits
FH	11	Nutrition	48	3
ENG	11	Language & Composition I		
		or	48	3
ENG	101	English Composition I		
FH	21	Menu Planning & Cost Control	48	3
FH	40	Equipment and Layouts	48	3
			192	12

SECOND SEMESTER (16 weeks)

			Hours	Credits
FH	32	Purchasing, Storage, and Sanitation	48	3
FH	33	Hospitality Merchandising	48	3
FH	41	Supervision-Work Simplification and Incentives	48	3
BA	12	Accounting I		
		or	48	3
BUS	210	Principles of Accounting I		
			192	12

OPERATING ROOM TECHNICIAN (OT) CERTIFICATE/ONE YEAR

Completion of this program enables the student to function as a skilled technician whose duties include care, preparation, and maintenance of sterile and unsterile supplies, and assisting registered nurses in the preparation of operating rooms for surgery in "scrub in" and "circulating" assignments

Types of Jobs: Member of surgical team in hospital operating rooms and central service departments or other areas closely concerned with the principles and practice of surgical asepsis

FIRST SEMESTER

			Hours
OT	02	Body Structure & Function	80
OT	11	Operating Room Techniques I	320
		Optional Elective	0/48
			400/448

SECOND SEMESTER

			Hours
OT	22	Operating Room Techniques II	464
		Optional Elective	0/48
			464/512

PRACTICAL NURSING (NU) CERTIFICATE/FIFTY-TWO WEEKS

Classroom instruction in theory and basic skills is given on the WACC campus Practical experiences in actual patient care settings are obtained at the two local hospitals (Williamsport Hospital and Divine Providence Hospital) and at the Lysock View Home and Hospital. Under the guidance of college instructors at the cooperating institutions, students gain experience in the care of adult patients and in maternal and child health nursing Mental health concepts, pharmacology, and diet therapy are integrated throughout the program

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty

FIRST SEMESTER-16 Weeks of 27 Hours Each

			Hours
NU	10	Foundations of Nursing	288
NU	01	Nursing Relationships	48
NU	02	Scientific Principles Relating to Nursing	96
			432

SECOND SEMESTER-15 Weeks of 33 Hours Each

			Hours
NU	11	Medical-Surgical Nursing Elem	225
NU	12	Parental and Child Health	270
			495

THIRD SEMESTER-15 Weeks of 33 Hours Each

			Hours
NU	13	Medical-Surgical Nursing Inter	495
			495

Theory – 600 Hours 2/5 Ratio
Practicum – 912 Hours 3/5 Ratio
Total 1,512 Hours

PRACTICUM

NU	14	Practicum	90
			90

Three weeks between first and second semesters
Thirty hours per week
VACATION-Twenty school days

RADIOLOGIC TECHNOLOGY (RT) ASSOCIATE DEGREE/TWO YEARS

This program includes courses in anatomy, physiology, physics, medical terminology, professional ethics, and radiologic equipment and safety. Practical experience with sick and injured patients, under qualified technical supervision in local hospitals, will be an important aspect of training. Students are exempt from the Physical Education Program.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry

An additional 960 hours of internship are required before you are eligible to take the registry examinations to qualify as a registered radiologic technician. Arrangements for this internship will be made with cooperating hospitals. The Associate Degree will be awarded after the summer internship is served.

FIRST SEMESTER

			Credits
BIO	105	Anatomy & Physiology of Man I	4
ENG	101	English Composition I	3
RT	10	Radiologic Technology I	5
MAT	103	College Algebra	3
ST	30	Medical Terminology	3
			18

SECOND SEMESTER

			Credits
BIO	106	Anatomy & Physiology of Man II	4
ENG	102	English Composition II	3
RT	11	Radiologic Technology II	7
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
PHY	111	Introductory Physics	4
RT	12	Radiologic Technology III	10
		Elective-Psychology** (Below)	3
			17

FOURTH SEMESTER

			Credits
PHY	113	Radiation Physics	3
RT	13	Radiologic Technology IV	10
SOC	101	General Sociology	3
			16

SUMMER SESSION

			Credits
RT	14	Internship	5

**Psychology Electives:

PSY	101	General Psychology	3
PSY	205	Abnormal Psychology	3
PSY	210	Social Psychology	3

TRANSPORTATION TECHNOLOGIES

AUTO BODY REPAIRMAN (AB) CERTIFICATE/TWO YEARS

The student masters trade tools and equipment through the study of theory and practical experience in sheet metal repairs, sanding, and application of fillers, primers, and color coatings. Shrinking, stretching, welding, panel installation, interior trim, and glass replacement are also stressed. The student gains skills in frame and steering alignment as well as damage estimating and repair.

Types of Jobs: Shop assignments to any of the areas mentioned. Insurance companies, repair shops, dealerships, self-employment

FIRST SEMESTER

			Hours
AB	11	Auto Body Repair I (8 weeks)	192
AB	12	Auto Body Repair II (8 weeks)	192
ENG	01	Communications I	48
			432

SECOND SEMESTER

			Hours
AB	21	Auto Body Repair III (8 weeks)	192
AB	22	Auto Body Repair IV (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

THIRD SEMESTER

			Hours
AB	51	Auto Body Repair V (8 weeks)	192
AB	52	Auto Body Repair VI (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
AB	61	Auto Body Repair VII (8 weeks)	192
AB	62	Auto Body Repair VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

AUTOMOTIVE MECHANICS (AM) CERTIFICATE/TWO YEARS

Elementary theory and manipulative skills, as practiced with modern tools and equipment, are stressed in a program which teaches the student to service and repair light commercial and passenger vehicles Proficiency is gained in working with power train, steering, brakes, ignition, carburetion, engines, and electrical components and assemblies

Types of Jobs: General auto mechanic in a dealership, independent garage, fleet operation, service station, self-employed

FIRST SEMESTER

			Hours
AM	11	Automotive Mechanics I	192
AM	12	Automotive Mechanics II	192
ENG	01	Communications I	48
			432

SECOND SEMESTER

			Hours
AM	21	Automotive Mechanics III	192
AM	22	Automotive Mechanics IV	192
MAT	10	Technical Mathematics I	48
			432

THIRD SEMESTER

			Hours
AM	51	Automotive Mechanics V (8 weeks)	192
AM	52	Automotive Mechanics VI (8 weeks	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
AM	61	Automotive Mechanics VII (8 weeks)	192
AM	62	Automotive Mechanics VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

AUTOMOTIVE TECHNOLOGY (AU) ASSOCIATE DEGREE/TWO YEARS

This program presents the advanced theory of operation of automotive systems and components The theory of operating principles is applied to diagnose both real and hypothetical malfunctions Service, repair and test procedures with modern equipment and special tools are emphasized Service specialization and business management may be elected. (On completion of this program the student may transfer to a four-year institution.)

Types of Jobs: Dealership service specialist, assistant service manager, skilled jobs in the automotive manufacturing industry, service equipment representative, rebuilding shop assembler, repair shop operator, parts department manager
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration

FIRST SEMESTER

			Credits
AU	50	Fuel & Electrical Systems	7
AU	53	Engines	7
PE		Physical Education	1
		Elective in Math**	3
			18

SECOND SEMESTER

			Credits
AU	51	Power Train	7
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
ED	01	Mechanical Drawing	2
PE		Physical Education	1
		Elective in Math***	3
			16

THIRD SEMESTER

			Credits
AU	52	Brakes, Chassis, and Suspension	7
ENG	13	Technical Writing	3
BM	13	Principles of Business	3
		Elective (Recommended PHY 20 Physics Survey	3
			16

FOURTH SEMESTER

			Credits
AU	54	General Repair Service	3
AU	55	State Inspection Repairs	3
AU	56	Service Specialty	7
		Elective-General*	3
			16

NOTE: Transfer students who are seeking a four-year degree may select alternate courses upon approval of the Dean

**For two-year (career) students: MAT 25 Intermediate Algebra
For transfer students: MAT 103 College Algebra
MAT 104 College Trigonometry
MAT 109 Applied Calculus
MAT 112 Calculus I
***For two year (career) students: MAT 20 Technical Mathematics II
BM 23 Business Mathematics
For transfer students: MAT 104 College Trigonometry
MAT 109 Applied Calculus
MAT 211 Calculus II

AVIATION MAINTENANCE TECHNICIAN (AC) CERTIFICATE/TWO YEARS

In preparing to become an aircraft and powerplant maintenance technician, the student learns the theories of, and gains practical skills in, such areas as aircraft powerplant maintenance and trouble shooting. This program is approved and licensed by the Federal Aviation Administration, and as a graduate the student will be qualified to take the examinations for the Airline and Powerplant Maintenance Certificate.

Types of Jobs: Maintenance technician for airlines, fixed base operators, and manufacturer's services.

FIRST SEMESTER

			Hours
AC	11	General Airframe and Powerplant	408
ED	04	Aircraft Drawings	64
MAT	15	General Aviation Mathematics	48
			520

SECOND SEMESTER

			Hours
AC	26	Powerplant	480
		Optional Elective	0/48
			480/528

THIRD SEMESTER

			Hours
AC	32	Basic Airframe	480
			480

FOURTH SEMESTER

			Hours
AC	42	Advanced Airframe and Powerplant	480
			480

DIESEL MECHANICS (DM) CERTIFICATE/TWO YEARS

This program presents theories and develops manipulative skills in the care of diesel-powered highway vehicles, industrial and marine engines, and commercial powerplants. Some specialization is available in fuel injection service, engine repair and rebuilding, power train, brakes, steering, and chassis work.

Types of Jobs: Mechanic in any of these fields truck dealership, independent garage, truck fleet, contractor, farm or construction equipment dealership, mining, quarrying, and waterways fleet Also field service representative or self-employment

FIRST SEMESTER

			Hours
DM	11	Basic Diesel Mechanics I (8 weeks)	192
DM	12	Basic Diesel Mechanics II (8 weeks)	192
ENG	01	Communications I	48
			432

SECOND SEMESTER

			Hours
DM	21	Diesel Mechanics I (8 weeks)	192
DM	22	Diesel Mechanics II (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

THIRD SEMESTER

			Hours
DM	51	Diesel Mechanics III (8 weeks)	192
DM	52	Diesel Mechanics IV (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
DM	61	Diesel Mechanics V (8 weeks)	192
DM	62	Diesel Mechanics VI (8 weeks)	192
		Optional Elective	0/48
			384/432

COLLEGE AND UNIVERSITY TRANSFER PROGRAMS

These programs are designed to be transferable into four-year college degree programs. The transfer counselor at WACC and the student's faculty advisor can help the student design a program to meet his/her needs and fulfill specific transfer requirements. The student should meet the requirements for an Associate of Arts degree as outlined on page 24.

Programs are available in the following areas:

Communications, Humanities, and Social Sciences
Division Director, James E. Logue

Economics
English
History
Liberal Arts/Humanities
Preparation for Elementary School Teaching
Preparation for Secondary School Teaching
Preparation for Social Work
Psychology
Social Science
Sociology

Mathematics, Science, and Allied Health
Division Director, Ronald E. Thompson

Biology
Chemistry
Mathematics
Physics

Pre-Professional

The following specialized programs can be started at WACC and then completed at a four-year college. The transfer counselor at WACC and the student's faculty advisor can help the student design a program to meet his/her needs and fulfill specific transfer requirements. The student should meet the requirements for an Associate of Arts degree as outlined on page 24.

Pre-Dentistry
Advisor: Mr. Ronald E. Thompson

To be admitted to a college of dentistry, a student should have a minimum of two years work in Liberal Arts which includes at least 60 semester hours. His course selections should include strong emphasis in chemistry, physics, and biology. The Dental Aptitude Test is usually required of an applicant for admission to dental school.

Pre-Law
Advisor: Mr. James E. Logue

A college of law usually has no specific pre-legal course requirements, but a prospective law student should choose his pre-legal subjects so as to achieve a well-rounded general education which will be relevant to his future career interests.

A four-year college is usually required to enter the college of law, as is the Law School Admissions Test, and each law school determines its own requirements for grade point average. It is recommended that a student meet the requirements of either the Liberal Arts or Business Administration curriculum.

Pre-Medicine
Advisor: Mr. Robert E. Thompson

A student desiring admission to a college of medicine should have a Bachelor of Science or Bachelor of Arts degree or at least 90 hours of college work and be eligible for full senior status in college. His chosen courses should have emphasis in biology, chemistry, and physics. The Medical College Admissions Test is required by most medical schools.

Pre-Ministerial Study
Advisor: Mr. James E. Logue

The American Association of Theological Schools strongly recommends a Liberal Arts course as the best preparation for theological training. The first two years of pre-ministerial work can be taken at WACC, with electives chosen according to the requirements of the four-year college the student wishes to attend.

Pre-Nursing
Advisor: Mrs. Cunningham

A student who wishes to get a Bachelor of Science degree with a major in nursing may take the first and/or second years of work in Liberal Arts and should be especially careful in selecting the science courses.

Pre-Occupational Therapy
Advisor: Mr. James E. Logue

The first two years of occupational therapy can be taken primarily in Liberal Arts with some specialization according to the requirements stated in the four-year college catalog.

Pre-Optometry
Advisor: Mr. Ronald E. Thompson

Admittance to a college of optometry requires a minimum of 60 semester or 90 quarter hours and a minimum of 2.5 for all college courses attempted

These courses will emphasize biology, chemistry and mathematics. Automatic admission is not implied by the attainment of the minimum requirements set forth in the program.

Pre-Pharmacy
Advisor. Mr. Ronald E. Thompson

One year of this curriculum may be taken in Liberal Arts and the next four years in a college of pharmacy. Chemistry and mathematics courses should be included in chosen courses.

Pre-Veterinary Medicine
Advisor: Mr. Ronald E. Thompson

A student should usually present 60 semester hours of acceptable college credit to be admitted to a college of veterinary medicine. These courses may be taken in Liberal Arts and should include emphasis in chemistry, biology and physics.

COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject—Accounting, Architectural Technology, Automotive, Aviation, Biology, Broadcasting, etc.

The letters and numbers preceding the names of the courses are an identification code for recording purposes

If a particular course has a prerequisite or corequisite, that fact is indicated in italics at the end of the course description.

The number immediately following the description of the course content indicates the number of credits. "3 Cr." or "192 Hrs." received for the course Within the parentheses, the number before the dash indicated lecture hours and the number after the dash indicates laboratory or shop hours.

SPECIAL TOPICS COURSES: (1-5 credits)

BTT 299 BUILDING TECHNOLOGIES
BCS 299 BUSINESS & COMPUTER SCIENCE
CHS 299 COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
ESD 299 EARTH SCIENCE
EED 299 ELECTRICAL /ELECTRONICS
EDT 299 ENGINEERING & DESIGN TECHNOLOGIES
MSH 299 MATHEMATICS, SCIENCE & ALLIED HEALTH
TTD 299 TRANSPORTATION TECHNOLOGIES

COURSE DESCRIPTION:

Special attention to particular abilities and interests of students Individual guidance in advanced studies Admission by permission of the instructor, Division Director, and Dean of Postsecondary Instructional Services

ACCOUNTING (BA)

BA 11
ELEMENTARY ACCOUNTING
Designed as a basic course in accounting for those students in Secretarial Science, Forestry, Food Service, etc Develops those accounting principles and theories which will prepare the student for employment in a single proprietorship form of business 3 Cr (3-0)

BA 12
ACCOUNTING I
Introduction to basic accounting principles accounting cycle, preparation and interpretation of statements and reports for proprietorships and partnerships 3 Cr (3-0)

BA 22
ACCOUNTING II
Advanced accounting principles as they apply to different forms of business corporate accounting, problems of manufacturing, departmental and branch operations 3 Cr (3-0)
Prerequisite BA 12 or Division Permission

BA 32
INTERMEDIATE ACCOUNTING I
Intangible assets, liabilities, stockholders equities, analysis and interpretation of financial reports, statements 3 Cr (3-0)
Prerequisite BA 22

BA 42
COST ACCOUNTING
Records and inventories, business transactions, determining costs after processing, profit through distribution 3 Cr (3-0)
Prerequisite BA 22

BA 44
INTERMEDIATE ACCOUNTING II
Deals with noncurrent assets, liabilities, investments, plant equipment, intangibles, long-term liabilities, stockholder's equity, paid-in capital, retained earnings, various analytical processes using comparative data, special ratios, measurements 3 Cr (3-0) *Prerequisite BA 32 or Division Permission*

BA 45
INCOME TAX ACCOUNTING
Familiarizes the student with the different rules and regulations regarding Federal and Pennsylvania State income taxes Federal and Pennsylvania State tax deductions, credits, exemptions, rates, computations and the various forms that students should be familiar with are stressed 3 Cr (3-0)

BA 46
AUDITING
Offers a thorough knowledge of auditing through the application of principles and adherence to auditing standards Internal controls, the field of auditing and public accounting, audit techniques, audit work papers, verification of accounts reporting the audit and internal auditing are discussed 3 Cr (3-0)

ARCHITECTURAL TECHNOLOGY (AT)

AT 11
STATICS
Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design, properties of areas. 3 Cr (3-0).

AT 12
STRUCTURES I
Theory and design of wood and timber; identification, characteristics and classifications of wood, working stresses; design and beams, columns, joints, rafters, plank, laminated sections; timber connections, fastenings and their working properties; laminated lumber, shapes. 2 Cr. (2-0).

AT 13
STRUCTURES II
Theory and design of steel beams, columns, and connections, (welded, bolted and riveted) for moment, shear, slope, deflections, axial and eccentric loads; the AISC Handbook; bearing capacity of masonry walls, design of bearing plates, steel joints, space frames and trusses. 2 Cr. (2-0).

AT 14
STRUCTURES III
Reinforced concrete building: theory and design of slabs, beams, compression steel, columns, prestressed concrete, footings, walls; floors; quantitative study of structural forms from the view of material development. 2 Cr. (2-0).

AT 25
BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology; use and care of drawing instruments and media, lettering, orthographic projection principles, preliminary drawing and sketching, preparation of working drawings, exterior and interior finish work, detailing cabinet and mill work 96 Hrs , (1-5).

AT 26
ARCHITECTURAL GRAPHICS I
Basic architectural graphic media; projection drawings; axonometrics and perspective; color and texture, introduction to the architectural model; basic vocabulary of architectural drawings; composition, space, form, value, texture, shades, shadows. 4 Cr (1-9).

AT 27
ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white, color problems; emphasis on development of techniques, style, presentation. 3 Cr. (1-6).

AT 28
ARCHITECTURAL WORKING DRAWINGS
Laboratory practice in producing a complete set of architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation quality. 2 Cr.(0-6).

AT 32
INTRO. HISTORIC THEORY IN ARCHITECTURE
Introductory course in architecture giving an overview of the curriculum and its relation to the profession. Discussions of architectural employment and further architectural education. Surveys architectural ideas as an introduction to historical theory of building, planning, and urban development from the emergence of man to the present day 3 Cr. (3-0).

AT 45
BUILDING MATERIALS AND METHODS I
Study of typical materials of residential construction; their production, properties, use, performance in combinations. 3 Cr. (3-0).

AT 46
BUILDING MATERIALS AND METHODS II
Subsurface exploration and foundations, water and damp-proofing; methods and materials for construction of masonry, concrete walls, slabs; wall, floor, and roof systems; the curtain wall; fireproofing; building codes, architectural hardware. 3 Cr. (3-0). *Prerequisite: AT 45*

AT 51
BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air-conditioning, and control systems; sources and design of water supply; sanitary and storm systems, computation of plumbing, heating, and cooling loads 3 Cr. (3-0).

AT 52
BUILDING EQUIPMENT II
Theory and design of electrical service distribution systems; selection of electrical equipment, fixtures; electrical heating design; theory and measurement of light, sound, vertical transportation systems; sound systems. 3 Cr. (3-0).

AT 62
SITE PLANNING
Theories, methods and equipment for the measurement of distances, angles, differences in elevation; theory of error, computations; adjustment of data, mapping application of surveying methods to construction, boundaries, emphasis on production and interpretation of maps for selection of sites, planning of subdivisions, preparation of master plans; examination of sites for building; elements of architectural earth sculpture, water, subsurface conditions, landscaping 3 Cr. (2-3).

AT 64
ADVANCED DESIGN I
Continuation of the design process; individual projects to develop student's ability to coordinate the design concept with construction. 4 Cr. (1-9).

AT 65
ADVANCED DESIGN II
Continuation of AT 64 4 Cr. (1-9).

AT 66
DESIGN I
Fundamental relationships of function, space, time, light, needs of man, introduction to the design process, collaborative work, emphasis on methods of work, presentation of architectural ideas by preliminary drawings, working drawing models 4 Cr (1-9)

AT 67
DESIGN II
Problems of differential space organizations, specialized spacial forms, relationship of space, form, structure, equipment, light, applications of elements of detailing, design of load bearing and curtain walls relating to total design, problems of tall buildings, building groups, associated site planning, architectural character and aesthetics, correlation of design with associated methods of construction, analysis, development of programs, collaborative work, advanced problems of form, visual expression, emphasis on methods of work, presentation of architectural ideas by preliminary drawings, working drawings, models 4 Cr (1-9) *Prerequisite AT 66*

AT 68
DESIGN III
Final course in design sequence, coordinates the design process with administrative procedures encountered in architectural practice Emphasizes design and design development Utilizes knowledge and skills acquired in previous and concurrent design and technical courses Assigned problems emphasize quality and understanding, with a systematic, uniform approach used to develop and explain building technology 4 Cr (1-9)

AT 75
PROFESSIONAL ADMINISTRATION AND CONTRACT DOCUMENTS
Architectural registration, professional organization, ethics, forms of architectural service, contract law bonds, liens, codes, insurance, bidding procedures, specification writing supervision and administration of construction operation 3 Cr (3-0)

AT 76
SEMINAR
Study of architectural ideas, theories, current problems, nature of architect as leader, human activity, relation to man's physical, social, intellectual and spiritual nature, influence of tradition, science, technology 3 Cr (3-0)

AUTOMOTIVE (AB, AM, & AU)

AB 11
AUTO BODY REPAIR I (8 weeks)
Basic theory and practice in trade fundamentals, body and chassis work, sanding, masking 192 Hrs (3-21)

AB 12
AUTO BODY REPAIR II (8 weeks)
Metal work, gas and electric welding, stretching and shrinkage of metal, fasteners, riveting 192 Hrs (3-21)

AB 21
AUTO BODY REPAIR III (8 weeks)
Used car reconditioning, interior trim work 192 Hrs (3-21) *Prerequisites AB 11 and AB 12*

AB 22
AUTO BODY REPAIR IV (8 weeks)
Panel installation and alignment, front and rear suspension and alignment, frame alignment 192 Hrs (3-21) *Prerequisite AB 21*

AB 51
AUTO BODY REPAIR V (8 weeks)
Metal working and filling, color requirements 192 Hrs (3-21) *Prerequisites AB 11 and AB 12*

AB 52
AUTO BODY REPAIR IV (8 weeks)
Color matching, spray painting, working "totals" 192 Hrs (3-21) *Prerequisites AB 11 and AB 12*

AB 61
AUTO BODY REPAIR VII (8 weeks)
Electrical practice, special trade tools and equipment, damage estimates, customizing 192 Hrs (3-21) *Prerequisites AB 11 and AB 12*

AB 62
AUTO BODY REPAIR VIII (8 weeks)
Customizing, stripping, vinyl tops, "felting", custom painting, estimating 192 Hrs (3-21) *Prerequisites AB 11 and AB 12*

AM 11
AUTOMOTIVE MECHANICS I
Power Train Theory of operation of standard transmissions, clutches, differentials, and automatic transmission Rebuild procedures on selected standard transmissions and differentials Minor service of automatic transmissions Universal joint and rear axle service Basic service of air conditioning systems 192 Hrs (3-9)

AM 12
AUTOMOTIVE MECHANICS II
Brakes and Suspension Theory of hydraulics, braking action, and suspension systems Wheel alignment and balance Steering gears and geometry Repair procedures for brake and suspension systems 192 Hrs (3-9)

AM 21
AUTOMOTIVE MECHANICS III
Fuel and Electrical Basic theory of electricity Operation and service of ignition, charging, cranking, lighting, and accessory circuits Operation and service of emission control systems and fuel systems components, with emphasis on carburetion Introduction to principles of heating and ventilating systems 192 Hrs (3-9)

AM 22
AUTOMOTIVE MECHANICS IV
Engines Theory of internal combustion heat engines Service and overhaul procedures Cooling system service Valve refracting and reseating Hand tools and basic machine tools 192 Hrs (3-9)

AM 51
AUTOMOTIVE MECHANICS V (8 weeks)
Application of basic service and repair procedures. Engine, chassis, and power train service with emphasis on fuel and electrical systems and engine service. Electronic engine diagnosis. 192 Hrs (3-21). *Prerequisite 384 Hrs. of AM.*

AM 52
AUTOMOTIVE MECHANICS VI (8 weeks)
Continuation of AM 51 Basic service and repair procedures. Emphasis on power train, suspension, and brake service Methods of state inspection 192 Hrs. (3-21). *Prerequisite: AM 51*

AM 61
AUTOMOTIVE MECHANICS VII (8 weeks)
General automotive repairs. Troubleshooting, diagnosis and repair of common malfunctions. Selected units for rebuild and overhaul. Chassis dynamometer testing 192 Hrs. (3-21). *Prerequisite: 384 Hrs. of AM*

AM 62
AUTOMOTIVE MECHANICS VIII (8 weeks)
Continuation of AM 61. General automotive repairs. Common repair jobs on domestic vehicles. State inspection operations and repairs. 192 Hrs (3-21). *Prerequisite: AM 61*

AU 50
FUEL & ELECTRICAL SYSTEMS
Fundamentals of electricity-electron theory. Ohm's law, and basic circuitry Principles of operation and service of ignition, charging, and cranking circuits Lighting and accessories circuits. Operation and service of the fuel system. Principles of carburetion and fuel injection. Emphasis on carburetor service. Air conditioning control circuits. 7 Cr. (4-9).

AU 51
POWER TRAIN
Operating principles and repair procedures for the clutch, standard transmission, U-joints, and differential. Fundamental theory of torque converters and planetary gearing Minor service procedures for automatic transmissions. 7 Cr. (4-9).

AU 52
BRAKES, CHASSIS AND SUSPENSION
Wheel alignment and balancing. Types of suspension systems. Suspension repairs. Drum and disc brake operating principles. Brake service procedures Fundamental principles of hydraulic systems. Standard and power steering adjustments and service. 7 Cr (4-9).

AU 53
ENGINES
Operation of two and four-stroke spark ignition engines Service procedures on common automobile engines including valve jobs, engine overhaul, and cooling system repairs Theory of gas cycles in automotive engines and air conditioners. Air conditioner repair and charging procedures. 7 Cr. (4-9).

AU 54
GENERAL REPAIR SERVICE
Application of service procedures to common repair jobs such as tune-up, brake relining, electrical service, and cooling system repairs 3 Cr (1-6). *Prerequisites: AU 50, AU 51, AU 52, and AU 53*

AU 55
STATE INSPECTION REPAIRS
Study of the state code book. Application and demonstration of checking procedures to actual work Regulations governing certification of state inspection stations and personnel. 3 Cr. (2-3) *Prerequisites AU 50, AU 52*

AU 56
SERVICE SPECIALTY
Two topics will be selected from the following service areas: automatic transmission overhaul, front end work, foreign car service, or service management techniques 7 Cr (4-9), 208 Hrs. *Prerequisites: AU 50, AU 51, AU 52*

AVIATION (AC)

AC 11
GENERAL AIRFRAME AND POWERPLANT
Basic concepts of aircraft, powerplant, aircraft systems maintenance, aircraft, powerplant nomenclature, theory of operation, weight, balance; blueprint reading, mechanics privileges, limitations; publications, aircraft forms. 408 Hrs. (192-212)*

AC 26
POWERPLANT
Theory, construction, nomenclature, operation of internal combustion engines; trade tools, theory, maintenance of fuel; electrical, ignition, lubrication, jet, reciprocating propulsion systems 480 Hrs. (188-292)* *Prerequisite AC 11.*

AC 32
BASIC AIRFRAME
Theory of flight; aircraft control systems; basic woodworking, hovering, skills in finishing, sheet metal, welding, rigging, assembly; operation and theory of aircraft electrical, hydraulic, pneumatic, air conditioning, fuel systems. 480 Hrs. (172-308)* *Prerequisite: AC 11*

AC 42
ADVANCED AIRFRAME AND POWERPLANT
Review and advanced practice in structural repairs of all metal aircraft systems; live aircraft experience, service procedures; overhaul, testing, installation, operation of live engines; troubleshooting of fuel, electrical, ignition, instrument systems. 480 Hrs. (228-252)* *Prerequisites: AC 26, AC 32.*

**Lecture and lab hours are shown per semester, not per week*

BIOLOGY (BIO)

BIO 03
BOTANY (HORTICULTURE)
Fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics. 3 Cr (2-3), 80 Hrs

BIO 25
ANATOMY AND PHYSIOLOGY
Study of human anatomy and physiology, cells, tissues, and tumors nervous, excretory, reproductive, and endocrine systems, diseases; principles of chemistry, microbiology and physics 3 Cr (3-0)

BIO 101
GENERAL BIOLOGY I
Fundamental processes of living organisms Main concepts of biology beginning with considerations of the chemical basis of life Structure, function, and evolution of cells 4 Cr (3-3)

BIO 102
GENERAL BIOLOGY II
Continuation of BIO 101 Structure, function, interrelationships, and evolution of organisms 4 Cr (3-3) *Prerequisite. BIO 101 or permission of the instructor*

BIO 105
ANATOMY AND PHYSIOLOGY OF MAN I
A medically orientated study of the structure and function of the human body Intended for students specializing in nursing, medical technology, and biology Lecture and laboratory 4 Cr (3-3)

BIO 106
ANATOMY AND PHYSIOLOGY OF MAN II
Continuation of BIO 105 4 Cr (3-3) *Prerequisite· BIO 105*

BIO 201
MICROBIOLOGY
Biology of microorganisms including bacteria, rickettsiae, viruses, fungi, protozoa, and helminths Relationships between microogranisms and higher forms of life 4 Cr (3-3) *Prerequisite BIO 102*

BIO 203
GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy 4 Cr (3-3). *Prerequisite BIO 102.*

BIO 208
ECOLOGY
Includes the basic principles of the relationships of plants and animals to their environments Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology Local terrestrial and aquatic environments 4 Cr (3-3) *Prerequisite One semester of college level Biology*

BIO 290
SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students Individual guidance in advanced studies Admission by permission of the instructor (1-3, laboratory as required)

BROADCASTING (BR)

BR 10
INTRODUCTION TO ANNOUNCING
Principles of announcing, practice in reading, voice inflecting, pronunciation of foreign names, and similar exercises, use of tape recorder in pre-recording repetitive items, lab instruction 3 Cr (3-0)

BR 14
STATION MANAGEMENT AND COMMUNITY RESPONSIBILITY
Study of problems related to serving community needs while making a profit, ratio of advertising to program time, character of station, meeting community responsibility through community interest programs, responsible use of editorial privilege 3 Cr. (3-0)

BR 16
NEWS WRITING FOR BROADCASTERS
A brief review of English as it is structured for news writing News writing, as it is peculiarly designed for the ear, for use in radio and television Typical news stories are written and recorded 3 Cr (3-0)

BR 17
BASIC ELECTRONICS AND FCC LICENSING
Fundamental mechanics of operation of tape recorders, turntables, network facilities, and multispeaker systems; mechanics necessary to obtain FCC licensing, field visits to at least five different stations 3 Cr (3-0).

BR 18
ADVANCED ANNOUNCING
Special techniques employed in sports announcing, "talk" programs, and interviews, lab practice, practice on College audio-visual equipment 3 Cr (3-0)

BR 19
RADIO PROGRAMMING
Determining basic character of a station, setting up a program to meet objectives, use of "public interest" programs and national, state, and local news to meet FCC requirements, maintaining balance between "talk" and "music" programs 3 Cr (3-0)

BR 20
BROADCAST ADVERTISING
The impact of advertising and its history in American culture. Examines phases of marketing analysis and media selection. Preparation of radio and TV advertising are a major part of the course 3 Cr (3-0)

BR 21
IN-SERVICE TRAINING I
Supervised work with the Office of College Information in the preparation of typed news releases for local radio stations, or assignments to the College's closed-circuit television production teams 2 Cr (0-6)

BR 22
IN-SERVICE TRAINING II
Advanced work with the Office of College Information in the preparation of "public service" programs for local radio stations, or more responsible assignments on closed-circuit television. 2 Cr. (0-6).

BR 23
IN-SERVICE TRAINING III
Major assignments with the Office of College Information or the audio-visual closed-circuit television system including the total preparation of at least one program from conception to final production 2 Cr (0-6).

BUSINESS ADMINISTRATION (BUS)

BUS 201
PRINCIPLES OF ACCOUNTING I
Fundamental theory. Current concepts and standards of recording, classifying, summarizing and interpreting business activity through accounting Practice in analysis and interpretation of financial position of business organization. 3 Cr (3-0).

BUS 202
PRINCIPLES OF ACCOUNTING II
Continuation of BUS 201, 3 Cr (3-0). *Prerequisite BUS 201*

BUS 250
BUSINESS LAW I
Survey of English and U.S. business law, with special attention to contracts; includes an introduction to property, crimes, and torts. 3 Cr (3-0).

BUS 251
BUSINESS LAW II
Laws pertaining to real and personal property, landlord and tenant, sales of goods, and negotiable instruments. 3 Cr. (3-0). *Prerequisite: BUS 250.*

BUSINESS MANAGEMENT (BM)

BM 13
PRINCIPLES OF BUSINESS
Basic business procedures, business in the U.S economic systems. 3 Cr. (3-0).

BM 14
OFFICE MACHINES
Understanding and operation of ten-key, full-keyboard adding-listing, rotary, key-driven calculator machines. 2 Cr. (1-3), 64 Hrs

BM 21
BUSINESS COMMUNICATIONS
English usage, both oral and written; transcription of business letters; collateral reading. 3 Cr. (3-0), 48 Hrs.

BM 23
BUSINESS MATHEMATICS
Mathematics of installment buying, discounting notes, drafts, insurance contracts, property and income taxes, social security, stocks, bonds, transportation; graphs, measurements, business records 3 Cr. (3-0), 48 Hrs.

BM 24
OFFICE PROCEDURES
Office forms, mail, filing, telephone, office management, instruction and practice in business machines; ten-key, full-keyboard, adding-listing, rotary, key-driven calculators, duplicating, dictating, transcribing 2 Cr (1-3).

BM 31
BUSINESS LAW I
Evolution of law, individual and business contracts, negotiable instruments, personal property sales, bailment contracts. 3 Cr. (3-0)

BM 33
BUSINESS ORGANIZATION AND MANAGEMENT
Structure, establishment and financing of sole proprietorships, partnerships, corporations; elements of an organization; principles of authority, accountability and responsibility; levels' theory, communication, policy formulation, incentive and efficiency 3 Cr. (3-0).

BM 35
BUSINESS PSYCHOLOGY
Personal adjustments for employees; modern business behavior problems 3 Cr (3-0)

BM 36
MARKETING
Merchandising methods; distribution channels; pricing; cost; brands; government regulations; influence of buyer and consumers on marketing programs; current marketing trends. 3 Cr. (3-0).

BM 37
BANKING AND INVESTMENTS
Banking industry as related to business and economic growth, personal and business banking services, stocks and bonds marketing. 3 Cr. (3-0).

BM 38
INSURANCE
Structure and practice of insurance field, types and uses of policies; importance of insurance. 3 Cr. (3-0).

BM 39
REAL ESTATE
Real estate basics: real property ownership, lease arrangements, legal aspects of property transactions; functions and procedures of real estate broker 3 Cr. (3-0).

8M 41
BUSINESS LAW II
Insurance law contracts; surety and guaranty agreements; partnerships; corporations, real property; wills, bankruptcy proceedings, court systems; lawsuit procedures 3 Cr (3-0). *Prerequisite: BM 31.*

BM 42
RETAILING
Familiarizes the student with the field of retailing Provides the technical and theoretical knowledge necessary for retail management employment 3 Cr (3-0).

BM 43
SALESMANSHIP
Examines the positive role personal selling plays in the U S economy and documents the extent to which selling has aided our economic growth Designed to show the role of salesmanship in helping customers recognize and satisfy wants and needs 3 Cr (3-0)

BM 45
FINANCE
Private and public finance, monetary and credit systems, policies, problems, factors affecting supply of funds 3 Cr (3-0)

BM 47
SMALL BUSINESS MANAGEMENT
Location, plant layout, financial problems, records, forms, purchasing, inventory, employer-employee relations, basic business law, and improvement of small business enterprises 3 Cr (3-0), 48 Hrs

CARPENTRY (CB & CC)

CB 10
WOODWORKING FOR CARPENTERS
Basic principles and skills of hand and machine woodworking operations, special projects 4 Cr (2-6)

CB 11
CONSTRUCTION CARPENTRY
Basic principles of frame construction foundations and concrete formwork, types of building frames, strength of beams and girders, structural sheathing and house details, ideas and trends in construction methods and techniques 4 Cr. (2-6)

CB 24
ESTIMATING AND BLUEPRINTS
Introduction, types of drawings, lines, marks, symbols, conventions, scales, dimensions, quantities of material and cost estimating 2 Cr (2-0)

CB 25
BLOCK CONSTRUCTION
Block laying skills in lab, practical work, classroom instruction covering materials used, types and sizes of blocks, principles of cost estimation 6 Cr (2-12)

CB 30
ROOF-FRAMING THEORY
Principles of rafter layout, use of framing square, problems of roof framing and construction, types of roofs and rafters 3 Cr (3-0)

CB 34
BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy, following architect's drawings, chimney, fireplace and wall projects 5 Cr (2-9)

CB 40
ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry, modern finishing materials, methods of application, exterior and interior trim, millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material, trim and moldings, built-in cabinet work, stair-building, school-sponsored construction work 4 Cr (2-6)

CB 42
BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction, solution of practical problems, special advanced projects, campus construction work including house construction projects 6 Cr (3-9)

CB 44
CONCRETE CONSTRUCTION
Principles of concrete design, water-cement ratio, proportions of ingredients, reinforced concrete, study of concrete footers, and walls, finishing with hand and power trowel equipment, proper methods of curing and testing 3 Cr (2-3)

CC 51
CONCRETE AND BLOCK (8 weeks)
Study and application of methods and materials used in laying out and building block and concrete walls, principles used in forming, pouring and finishing concrete footings, reinforced concrete and concrete slabs Appropriate tools are introduced and instruction in their proper use and care is offered 200 Hrs (5-20)

CC 52
FRAMING AND SHEATHING (8 weeks)
Principles and applications of framing and sheathing through shop and outside projects Emphasizes new and traditional materials used in this phase of construction 200 Hrs (5-20)

CC 53
INTERIOR FINISH (8 weeks)
Presents a broad area of building construction, including door hanging, moldings and trim, built-in features, stair building and kitchen cabinets Offers the student a wide range of information and, when possible, provides experience in the use of the methods and materials studied 176 Hrs. (5-17)

CC 54
SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas, from wall and floor coverings through fundamental electrical wiring and plumbing and heating Instruction and practical experience 152 Hrs (3-16)

CC 61
BRICK AND STONE (8 weeks)
Study of brick and stone products currently used in construction, with emphasis on common methods within the shop, and, when possible, through permanent projects outside the shop 200 Hrs (5-20)

CC 62
EXTERIOR FINISH (8 weeks)
Develops skills in the selection and use of siding and roofing materials. Offers experience in door and window framing, exterior trim, cornice work, insulation materials and methods. 200 Hrs. (5-20).

CC 63
INTERIOR TRIM (8 weeks)
Instruction in the selection and application of materials used for interior walls, ceilings and floors. Opportunity for the student to use these materials, and the tools associated with them, through shop and permanent installations. 176 Hrs. (5-17).

CC 64
PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Utilization of the knowledge and skills acquired in the construction curriculum. Supervised permanent projects on and around campus are used as an instructional vehicle. When practical, the student participates in all stages of the project from planning through construction. 152 Hrs (0-19).

CC 73
BLUEPRINTS AND SPECIFICATIONS
Develops techniques in reading and interpreting of blueprints and specifications. Instruction in reading plan views, elevations, and details as typical of working drawings Reviews the math principles involved in understanding and using these drawings. Stresses specifications and their relationship to the working drawings. 48 Hrs. (3-0). *Prerequisites. CC 51, CC 52, CC 61, CC 62*

CC 74
BUILDING TRADES ESTIMATING
Study of processes and procedures gives working knowledge of various trades and shows how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis on types of estimates and quantity take-offs. 48 Hrs. (3-0). *Prerequisite. CC 73*

CC 84
PERSONAL AND JOB ORIENTATION
Introduction to practical techniques in self-evaluation stressing the importance of values, interests, personality, and attitude in determining work success. Emphasis on establishing realistic work goals and expectations based on the student's knowledge of himself. Surveys problems the beginning worker faces preparing to take his place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 48 Hrs (3-0).

CHEMISTRY (CHE)

CHE 11
FUNDAMENTALS OF CHEMISTRY
Introductory treatment of basic concepts of inorganic and organic chemistry. Essentially non-mathematical. Intended for the student who has never had chemistry or whose background is very weak. Prepares the student for CHE 105 or CHE 111. 4 Cr. (3-3).

CHE 105
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. Intended for non-science students desiring to fulfill a lab science requirement and for science students as a preliminary introduction to CHE 203. 4 Cr (3-3) *Prerequisites. High school chemistry or permission of the instructor*

CHE 111
GENERAL CHEMISTRY I
Principles of modern chemistry with emphasis on inorganic aspects. Intended for science majors and non-science students desiring to fulfill lab science requirement. Prepares the student to continue into CHE 112 or CHE 203 4 Cr. (3-3). *Prerequisites: High school algebra or equivalent, high school chemistry desirable but not required*

CHE 112
GENERAL CHEMISTRY II
Continuation of CHE 111 Intended for science majors and non-science students desiring to fulfill a lab science requirement, but the latter may desire to elect CHE 105 instead. 4 Cr. (3-3). *Prerequisites: CHE 111, or high school chemistry with permission of the instructor*

CHE 203
ORGANIC CHEMISTRY I
Study of the major classes of organic compounds with emphasis on molecular structure and reaction mechanisms. Intended for science majors. 4 Cr (3-3). *Prerequisites: CHE 111, or CHE 105, or high school chemistry with permission of the instructor*

CHE 204
ORGANIC CHEMISTRY II
Continuation of CHE 203. 4 Cr. (3-3). *Prerequisites. CHE 203 or equivalent.*

CHE 290
SPECIAL TOPICS IN CHEMISTRY
A flexible course intended to meet special needs or interests of science or non-science students. Lectures may be supplemented with lab work as needed 1 to 4 Cr. *Prerequisite: Permission of the instructor.*

CIVIL ENGINEERING TECHNOLOGY (CT)

CT 05
MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials; methods of testing and sampling construction materials; application of data on materials to design of structure. 2 Cr (2-0).

CT 06
ENGINEERING DRAWING
Use of instruments lettering, geometric constructions, orthographic projection, dimensioning, sketching Architectural drawing including plans, elevations, details, and site plans Structural drawing including uses and detailing for wood, concrete, and steel structures 3 Cr (1-6)

CT 10
INTRODUCTORY SURVEYING
Introduction to surveying, use and care of instruments, simple surveys with compass, transit, level, and tape 2 Cr (1-3) *Prerequisite High school trigonometry, algebra, and geometry*

CT 20
PLANE SURVEYING
Theory and practice of plane surveying, traverses and elementary triangulation, differential and reciprocal leveling, stadia and construction surveys, plane table surveys 4 Cr (1-9) *Prerequisites CT 10, MAT 103 Corequisite MAT 104*

CT 23
TOPOGRAPHIC DRAWING & CARTOGRAPHY
Use of conventional signs in mapping, the construction of large-scale topographic maps, logical contouring, photographic interpretation Methods of plotting, use and construction of small scale maps, earth's coordinate system, map projections, enlargement and reduction of maps, scribing techniques, photographic color separation, typography, reproduction, and processing 3 Cr (1-6) *Prerequisite CT 06*

CT 30
ROUTE SURVEYING
Highway curves (horizontal and vertical), plus and offset, X-sections, field astronomy, route location, 4 Cr (1-9) *Prerequisites CT 20, MAT 104*

CT 34
STATICS
Basic principles of statics, coplanar and non-coplanar force systems, friction, centroids and moments of inertia, hydrostatic pressures and loads 3 Cr (3-1) *Prerequisite MAT 104*

CT 35
HIGHWAY ENGINEERING TECHNOLOGY
Highway economy, highway characteristics, drainage and structures, super-elevation, roadway construction, concrete-mix design, hydrology (precipitation and runoff), mass diagram, contracts and specifications 3 Cr (3-0) *Corequisite CT 30*

CT 40
ADVANCED SURVEYING
Theory and practice of boundary surveys, city surveys, mine surveys, hydrographic surveys and steam gaging, bridge surveys, survey control, and state coordinate systems, public land surveys, precise leveling and triangulation 3 Cr (2-3) *Prerequisite CT 30*

CT 44
STRENGTH OF MATERIALS
Engineering materials and properties, shear and moments in beams, stresses in beams, design of beams, deflection of beams, columns 3 Cr. (3-0) *Prerequisite CT 34*

CT 46
PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods, geometry of aerial photographs; aerial triangulation, flight planning, mosaics, contracts and specifications 3 Cr (2-3) *Prerequisites CT 23, MAT 104*

COMPUTER OPERATOR (CO)

CO 10
BASIC COMPUTER OPERATIONS
Introduces all the physical aspects of data processing Training for competence in operating punch card and computer equipment along with peripheral devices found in EDP Confidence in operating ability developed through on-the-job training in the WACC computer center Exposure to data processing hardware 4 Cr (3-3), 96 Hrs *Corequisite CS 18*

CO 11
COMPUTER OPERATIONS INTERNSHIP I
Practical experience in computer operations by assignment to the college's computer center and the data communications laboratory 2 Cr (0-6), 96 Hrs *Corequisite CO 10*

CO 20
ADVANCED COMPUTER OPERATIONS
Introduction to and training in the non-physical aspects of data processing operations Emphasis on "software" operations Concentrates on using EDP manuals, the programs which allow the computer to operate efficiently, and the actual operation of a computer center Field trips to broaden understanding of computer hardware operations 4 Cr (4-0), 64 Hrs *Prerequisite CO 10*

CO 21
COMPUTER OPERATIONS INTERNSHIP II
Continuation of CO 11 2 Cr (0-6), 96 Hrs *Prerequisite CO 11*

CO 22
COMPUTER TECHNOLOGY
Introduces additional features of computer hardware and processing concepts Includes a survey of computer hardware and comparison of various types of computers, purpose and operation of computer terminals, time-sharing, telecommunications, and mini-computers Fundamental understanding of electronics On-the-job training in the WACC computer center and various industrial locations 3 Cr (3-0), 48 Hrs *Prerequisites CO 10 and CS 18*

COMPUTER SCIENCE (CS & CSC)

CS 03
INTRODUCTION TO DATA PROCESSING
Study of data processing systems, methods, and applications; punch card equipment, records and files; concepts of computer systems; data representation; forms of input and output; introduction to programming, operating and data communications systems; application exercises. 3 Cr. (3-0).

CS 04
TECHNICAL COMPUTER PROGRAMMING
Study of the Fortran language and programming as applied to technical applications; basic concepts of computer systems and applications; problem analysis, flowcharting and problem solving 3 Cr. (3-0). *Prerequisite: Algebra.*

CS 05
BUSINESS COMPUTER PROGRAMMING
Basic logic and problem organization for data processing applications; general introduction to programming concepts; RPG language and applications, basic software packages; introduction to COBOL. 3 Cr (3-0). *Prerequisite: CS 03*

CS 18
FUNDAMENTALS OF COMPUTER SCIENCE
Basics of data processing and problem solving techniques; types of data processing systems, punch card equipment, records and files; concepts of computer systems; logic and problem solving techniques, flow charts, algorithms, data representation and file organization; introduction to programming languages; operating procedures with "hands-on" experience. 3 Cr. (3-0).

CS 19
COMPILER LANGUAGE I—FORTRAN
Fortran IV language programming as applied to business and mathematics problems; problem analysis, programming techniques and procedures; utilization of magnetic tape and disc. 3 Cr (3-0)

CS 20
SUPPORT SYSTEMS
Advanced study of computer concepts and software, computer operating systems and job control techniques with "hands-on" practice, utilities and program libraries, programming language 3 Cr. (3-0) *Prerequisite CS 18.*

CS 27
ASSEMBLER LANGUAGE I
Beginning course in Basic Assembler Language, data representation, instructions, coding; problem analysis, flowcharting, program writing, execution, debugging and documentation; job control and operation systems 4 Cr (4-0). *Prerequisites: CS 18 and CS 19 (or permission of Division).*

CS 30
INTERNSHIP IN COMPUTER SYSTEMS
Supervised individual research projects or assignment to an industrial data processing site for on-the-job training 3 Cr. (0-9). *Prerequisite: Two semesters of Computer Science.*

CS 33
SYSTEMS DEVELOPMENT AND APPLICATIONS I
Analysis and design of data processing systems, system investigation, input, output designs, record and file designs, information structures; problem definition, documentation, coding approaches; independent development of an assigned system problem by the student 3 Cr (3-0). *Prerequisites: CS 20 and CS 27.*

CS 35
COMPILER LANGUAGE II—COBOL
Study and programming in the COBOL computer language, language elements and divisions, program writing, execution, and diagnostics; advanced programming concepts and techniques. 4 Cr (4-0). *Prerequisite: CS 20.*

CS 37
ASSEMBLER LANGUAGE II
Continuation and expansion of CS 27; data manipulation; tape, disc and floating point operations, macro definitions and statements; analyzing and programming problems from business and scientific applications. 4 Cr. (4-0). *Prerequisite CS 27*

CS 41
DATA MANAGEMENT
In-depth study of the structure and techniques of data representation and manipulation; sequential and random organization; list structures, complex structures, symbol tables, searching and sorting techniques; information structures, data communications 3 Cr. (3-0). *Prerequisites: CS 27 and CS 35*

CS 42
NUMERICAL PROGRAMMING METHODS
Basic concepts of the methods used in the numerical solution of problems, approximations, series expansions, difference tables; linear programming, simplex method, study and use of digital plotters 3 Cr (3-0). *Prerequisites CS 19, MAT 200 and MAT 201*

CS 43
SYSTEMS DEVELOPMENT AND APPLICATIONS II
Independent development of an assigned systems problem and/or continuation of problem assigned in CS 33; design criteria, logic diagrams and coding; manual and operating procedures and manuals, proving the system; feedback and evaluation 3 Cr (3-0) *Prerequisites: CS 33 and CS 35*

CSC 101
INTRODUCTION TO COMPUTER SCIENCE
Concepts of data processing systems, methods and applications; programming languages and program structures; FORTRAN IV programming language problem analysis, flowcharting and computer solution of numerical and non-numerical problems. 3 Cr. (3-0).

DENTAL LABORATORY TECHNICIAN (DL)

DL 12
INTRODUCTION TO DENTAL TECHNOLOGY (BASIC FUNDAMENTALS)
Introduction to the terminology, materials, tools, equipment, and general area Use of the above and the necessary safety precautions Various basic techniques also presented 5 Cr (3-6)

DL 13
DENTAL MATERIALS
Familiarizes trainees with the history, names, types, physical and mechanical properties, uses, proper handling and limitations of dental materials, including impression materials, waxes, metals, gypsum, compounds, resins, and porcelains 3 Cr (3-0)

DL 22
DENTAL TECHNIQUES I
Explains the necessary qualities needed for satisfactory dentures Includes specialized techniques in tooth selection, arrangement, waxing and processing, immediate denture technique and various repair, reline and rebasing procedures 6 Cr (3-9)

DL 23
ORAL ANATOMY
A study of the skull, including its blood and nerve supply, muscles, joints, surfaces, glands and teeth 3 Cr (3-0)

DL 32
DENTURE TECHNIQUES II
Utilizing training from DL 22 through practical application on actual cases Improves skills, quality, accuracy and speed, in a productive setting 6 Cr (1-15) *Prerequisite DL 22*

DL 33
ODONTOGRAPHY
A study of tooth anatomy, including lectures and bench procedures Drawing of teeth to scale and carving to scale in plaster and wax 4 Cr (2-6)

DL 42
CAST PARTIAL TECHNIQUES I
Includes an introduction to removable partial appliances, terminology, phases of construction, use of surveyor, design, connectors, rests and retainers Also waxing, spruing, investing, casting, finishing, and polishing 6 Cr (3-9)

DL 44
CROWN AND BRIDGE I
Begins with the historical background of Crown and Bridge procedures and techniques, continues on to include the latest in the construction of Inlays, Crowns, and Bridges from impression to completion, including soldering and veneering 5 Cr (3-6)

DL 50
CAST AND PARTIAL TECHNIQUES II
Utilizes training from DL 42 through practical application on actual cases The improving of skills, quality, accuracy and speed, in a productive setting 6 Cr (1-15) *Prerequisite DL 42*

DL 51
CROWN AND BRIDGE II (DENTAL CERAMICS)
Begins with a discussion of the history of the art of ceramics Covers the various compositions of dental porcelains Manipulation, carving, firing, and glazing of porcelain, with characterization and shading of porcelain stressed, using stains and modifiers Techniques of fusing and soldering porcelain to gold 5 Cr (3-6) *Prerequisite DL 44*

DIESEL MECHANICS (DM)

DM 11
BASIC DIESEL MECHANICS I (8 weeks)
Fasteners, mechanical measurements Basic principles of electricity Gasoline engine principles and service procedures 192 Hrs (5-19)

DM 12
BASIC DIESEL MECHANICS II (8 weeks)
Introduction to diesel engines Automotive electrical systems, with emphasis on cranking and charging circuits 192 Hrs (5-19)

DM 21
DIESEL MECHANICS I (8 weeks)
Gasoline engine repair and overhaul Emphasis on gas truck engines Basic principles of truck air conditioning systems 192 Hrs (5-19) *Prerequisites DM 11 and DM 12*

DM 22
DIESEL MECHANICS (8 weeks)
Diesel engine repair and overhaul Applications of diesel power including trucks, stationary, and marine 192 Hrs (5-19) *Prerequisite DM 21*

DM 51
DIESEL MECHANICS III (8 weeks)
Basic hydraulics Introduction to diesel fuel injection systems Principles of governing Mechanical governing 192 Hrs (5-19) *Prerequisites DM 22, or SO 23, or AM 22, or AU 53*

DM 52
DIESEL MECHANCIS IV (8 weeks)
Fuel injection systems Hydraulic governors 192 Hrs (5-19). *Prerequisite DM 51*

DM 61
DIESEL MECHANICS V (8 weeks)
Truck power train Clutch, transmission, driveline and differential 192 Hrs (5-19)

DM 62
DIESEL MECHANICS VI (8 weeks)
Truck chassis, brakes and suspension State inspection procedures 190 Hrs (5-19)

DRAFTING—ENGINEERING (ED)

ED 01
MECHANICAL DRAWING
Offered to students who are enrolled in curricula other than drafting Use of drawing instruments, lettering, geometric construction, orthographic projection, technical sketching, isometric and oblique sketches, dimensioning, sections, auxiliary views, threads and fasteners, working drawings, and blueprint reading. 2 Cr (1-3).

ED 02
ENGINEERING DRAFTING
Practical application of drafting to the electrical construction field for both domestic and commercial use; house diagrams with circuit schematics, wiring diagrams and complete bill of material and layout diagrams for public facilities such as the lighting system for a small community 2 Cr (1-3).

ED 03
GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr (1-3).

ED 04
AIRCRAFT DRAWINGS
Aircraft blueprint reading for aviation maintenance technicians with emphasis on the reading and interpretation of multiview drawings, including installation diagrams, schematics, the use of charts and graphs Making three dimensional sketches for repair and alterations to aircraft 64 Hrs. (1-3).

ED 05
BLUEPRINT READING
A study of blueprint reading for welders with emphasis on the reading and interpretation of multiview drawings involving dimensions, notes specifications and welding symbols. 48 Hrs (1-2).

ED 10
BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, isometric drawings, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

ED 11
BASIC DRAFTING II (8 weeks)
Inclusion of screwthreads and fastening devices, working, assembly and installation drawings; study of sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: ED 10.*

ED 12
INDUSTRIAL PROCESSES
Theories and applications in the principal metal removal, forming, joining, and casting processes. 2 Cr. (2-0), 32 Hrs.

ED 20
POWER TRANSMISSION (8 weeks)
A study of power and motion transfer through the use of gears and cams and other devices. 4 Cr (4-12).

ED 21
MECHANISMS (8 weeks)
A study of power and motion transfer through the use of various linkages and mechanisms. 4 Cr (4-12).

ED 30
DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate work drawings, sub-assemblies and assemblies; drawing details from sketches and other engineering specifications 4 Cr (4-12). *Prerequisite. ED 11.*

ED 31
APPLIED DRAFTING TECHNIQUES (8 weeks)
Complicated detail drawings from industrial castings; comprehensive study of close tolerance dimensioning 4 Cr (4-12). *Prerequisite ED 30*

ED 40
ADVANCED DETAIL I (8 weeks)
Redesign of industrial castings into weldments, detail drawings from engineering layouts; comprehensive study of welding, piping and layouts 4 Cr (4-12).

ED 41
ADVANCED DETAIL II (8 weeks)
Advanced study and application of drafting using layouts from industry to make detail, assembly and sub-assembly drawings; included are geometric tolerancing, true position dimensioning and surface finish specifications in accordance with industrial and military standards. 4 Cr (4-12). *Prerequisite ED 31*

ED 51
DESCRIPTIVE GEOMETRY
Principles of orthographic projection; fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes, graphical computations for bearings and slopes of lines, strike and dip of planes; solution of problems of intersection of planes and solids 3 Cr (1-6). *Prerequisite. High school background in drafting*

DRAFTING—MECHANICAL (MD)

MD 10
DRAFTING TECHNIQUES I (8 weeks)
Mechanical drawing, lettering, geometric drawing; orthographic projection, pictorial projections, sectioning, dimensioning; auxiliary views; revolutions; free-hand sketching; reproduction processes. 192 Hrs. (1-23).

MD 11
DRAFTING TECHNIQUES II (8 weeks)
Threads, fasteners, springs; working drawings; assembly, detail and installation drawings. 192 Hrs. (1-23).

MD 20
APPLIED DRAFTING I (8 weeks)
Study of sheet metal intersections and developments, cones, transition pieces, irregular shapes; introduction to making accurate detail drawings from industrial machines parts 192 Hrs (1-23)

MD 21
APPLIED DRAFTING II (8 weeks)
Accurate detail drawings from complicated industrial machine parts, conforming to industrial and military standards, comprehensive study of close tolerance dimensioning 192 Hrs (1-23)

MD 30
APPLIED DRAFTING III (8 weeks)
Study of power transmissions, pulleys, sheaves, gears, sprockets 192 Hrs (1-23)

MD 31
APPLIED DRAFTING IV (8 weeks)
Study of the mechanisms used to create motion in machine cams, linkages 192 Hrs (1-23)

MD 40
APPLIED DRAFTING I (8 weeks)
Redesigning of industrial castings into weldments; detail drawings, from engineering layouts, comprehensive study of welding, piping and layout drawings 192 Hrs (1-23)

MD 41
APPLIED DRAFTING VI (8 weeks)
Advanced study of drafting applications using industrial layouts to make detail, assembly, sub-assembly drawings, geometric tolerancing, true position dimensioning, surface finish specifications in accordance with industrial and military standards 192 Hrs (1-23)

MD 55
DRAFTING
Simple machine layout, completion of the necessary drawings according to industrial practices 208 Hrs (1-12) *Prerequisite Division Director approval*

NOTE Courses to be taken in sequence as listed unless approval is granted by the Division Director

ECONOMICS (ECO)

ECO 11
BASIC ECONOMICS
Basic principles of our economy, U S capitalistic system, business cycles, investments, stock market operation, personnel policies and procedures 3 Cr (3-0), 48 Hrs

ECO 201
PRINCIPLES OF ECONOMICS
An introductory course dealing primarily with the United States economy, its make-up and problems 3 Cr (3-0)

ECO 202
ECONOMIC ANALYSIS
A study of the theory of the firm, and analysis of economic problems involved in public policy decisions Required of students following the business administration curriculum, or intending to major in economics 3 Cr (3-0) *Prerequisite ECO 201*

ECO 204
COMPARATIVE ECONOMIC SYSTEMS
Analysis of current economic systems, their theory and practice. 3 Cr (3-0) *Prerequisite ECO 201, or permission of the instructor*

ECO 290
SPECIAL STUDIES IN ECONOMICS
A flexible course designed to meet special needs of economic students 1-3 Cr (1 to 3-0) *Prerequisite Permission of the instructor*

EDUCATION (EDU)

EDU 102
CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adult's literature Provides a basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area 3 Cr (3-0)

EDU 201
INTRODUCTION TO EDUCATION
Foundations of education historical, economic, philosophical, and social Their implications for present-day education 3 Cr (3-0)

ELECTRICAL (EL & EW)

EL 12
BASIC WIRING LAB
Lab course in tools and materials of trade; proper use and care of hand tools, instruction in wiring of these basic circuits, residential lighting and receptacle circuits, low voltage switching and control circuits, use of electrical underwriters rules in color coding 2 Cr (1-5), 96 Hrs

EL 14
ELECTRICITY FOR THE TRADES
Theory and laboratory assignments involving electrical design and symbols as noted on building construction blueprints Explanation of electrical diagrams, and National Electrical Code as governing agent setting rules for wiring requirements Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory 3 Cr. (2-3) 80 Hrs

EL 15
DIRECT CURRENT FUNDAMENTALS
A study of the basic principles of electricity and the laws and formulas which are used to solve electrical problems Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery Laboratory work to enable the student to hook up equipment and instruments 5 Cr. (4-3)

EL 16
BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacle circuits Low voltage switching and control circuits Electrical underwriters rules Proper use and care of hand tools 3 Cr (1-6)

EL 18
ACCIDENT PREVENTION
Principles of accident prevention in industry and electrical safety procedures in all human activities; lifesaving techniques 2 Cr (2-0), 32 Hrs.

EL 25
ALTERNATING CURRENT FUNDAMENTALS
The fundamental principles of the behavior and flow of alternating current electricity Includes problem solving current, voltage, impedance, reactance and power factor in series and parallel circuits. Operating principles of AC motors, generators and control equipment 5 Cr. (4-3) *Prerequisite: EL 15.*

EL 26
BASIC ELECTRICAL CONSTRUCTION LAB
Further study of the use of electrical equipment and materials, including all types of wiring devices and wiring systems, Planning and installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems. 2 Cr. (1-3). *Prerequisite: EL 16, or EL 12.*

EL 27
RESIDENTIAL BLUEPRINT READING/NATIONAL ELECTRICAL CODE
Planning and drawing of residential wiring systems, calculating number and size of circuits needed for lighting, appliance, and heating; remote control systems; study of National Electrical Code requirements for residential, industrial, and commercial wiring 4 Cr (4-0).

EL 38
ELECTRICAL MOTOR CONTROL
Motor control systems in industry, simple and complex, tracing circuits and trouble shooting a system from a schematic drawing The principles of rotating and magnetic amplifiers, and static switching 4 Cr (3-3).

EL 39
BASIC ELECTRONICS
Fundamentals of electronics including basic symbols, circuit configurations, electron tubes, solid state devices; rectifier, amplifier, and oscillator circuits as used in industrial work Laboratory skills demonstrate practical application of industrial electronics through layout and assembling various circuits, along with solid state devices. 6 Cr (4-6). *Prerequisite. EL 25.*

EL 42
ADVANCED ELECTRICAL THEORY
Solution of network problems and problems involving charge and discharge of capacitors, rotating vectors and other problems involving alternating electricity, 3 Cr. (3-0). *Prerequisite. EL 25*

EL 47
ELECTRICAL SYSTEMS ANALYSIS
Understanding of electrical equipment and electrical testing apparatus to aid in locating and repairing malfunctions in equipment Preventive maintenance and maintenance records. Use of voltmeters, ammeters, wattmeters, ohm-meters, meg-ohmmeters, wheatstone bridge, tachometer, and all hand tools associated with the electrical trade. 2 Cr (1-3). *Prerequisite. EL 39.*

EL 48
ELECTRICAL CONSTRUCTION BLUEPRINT READING
Blueprint reading and circuit planning construction in factories and commercial buildings. Reference to the rules of the National Electric Code and the Department of Labor and Industry 4 Cr. (4-0).

EW 11
DIRECT CURRENT FUNDAMENTALS
Study of basic electrical laws, electrical terms, batteries, electro-statics, electrical meters and instruments, direct-current machinery. 160 Hrs (5-5).

EW 18
MOTOR REWINDING I
Electrical and mechanical features of various single phase motors; lab work and developing knowledge and skill in rewinding and repairing single phase motors 96 Hrs (1-5).

EW 21
ALTERNATING CURRENT FUNDAMENTALS
Study of nature of alternating current electricity as related to residential, commercial and industrial power use, laws and formulas needed for the solution of problems in the use of AC power, study of AC machinery; lab work for demonstrating AC electrical principles, practical experience in hook-up of equipment and instruments 160 Hrs. (5-5). *Prerequisite. EW 11*

EW 24
BASIC MOTOR CONTROL
Theory and lab assignment involving wiring of starting and control equipment for DC and AC motors, including circuitry for start-stop stations, forward-reverse and jogging push button stations, and some speed control. 96 Hrs. (3-3).

EW 31
BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical materials, house wiring circuits, wiring boxes of many kinds, armored cable, wire mold and romex, fluorescent and incandescent light switches and receptacle circuits. 112 Hrs. (1-6). *Prerequisite. EL 12.*

EW 35
RESIDENTIAL BLUEPRINT AND CODE
Study of residential wiring circuits, low voltage remote control switching and electric heating; study of the National Electrical Code book and its provisions dealing with residential and other types of wiring. 64 Hrs (4-0).

EW 37
ADVANCED MOTOR CONTROL
Theory and laboratory assignments further jobs learned in EW 24, with the study and use of speed controls, plugging equipment for braking and dynamic braking, timing relays involving pneumatic and dash pot types. 96 Hrs (1-5). *Prerequisite: EW 24*

EW 39
BASIC ELECTRONICS FOR INDUSTRY
Basic electronic concepts used in industrial control Study of vacuum tubes, electronic circuits, solid state devices, symbols, and motor circuits Application of these devices in laboratory practices demonstrates use in industry 160 Hrs (4-6) *Prerequisite EW 21*

EW 41
COMMERCIAL AND INDUSTRIAL BLUEPRINT READING
Study of electrical construction planning for industry and commerce and relevant electrical code 64 Hrs (4-0)

EW 42
INDUSTRIAL MOTOR CONTROL
Study of industrial control circuitry involving theory of SCR equipment, static control and circuitry, logic laboratory experience in designing and constructing control panels used in industry 96 Hrs (3-3) *Prerequisite EW 37*

EW 44
ADVANCED ELECTRICAL CONSTRUCTION
Practice in installation of rigid conduit and other electrical wireways, pulling in and wiring of motor controllers and other electrical equipment, study of blueprints of large electrical construction jobs 144 Hrs (1-8) *Prerequisite EW 31*

EW 49
ELECTRICAL MACHINERY, ANALYSIS AND REPAIR
Theory and laboratory instruction in use of complex metering methods used with industrial equipment static and logic circuitry, equipment troubleshooting and repair using schematic diagrams, power transmission and distribution 128 Hrs (4-4) *Prerequisite EW 39*

ELECTRONICS (ET)

ET 11
ELECTRONICS—THEORY I
Electricity and electronics theory including structure of matter, basic atomic theory, DC and AC, Ohm's Law, Kirchoff's Law, electrical calculations and formulas, magnetism and electromagnetism, vector analysis, resonance, electrical filters, measuring instruments 5 Cr (5-0)

ET 12
ELECTRONICS—APPLICATIONS I
Application of electronic concepts of component testing and identification, wiring electrical and electronic circuits, demonstration and laboratory work coupled with extensive use of electronic tools and equipment 3 Cr (0-9) *Prerequisite or Corequisite ET 11*

ET 14
ELECTRICAL CIRCUIT ANALYSIS
First of three or four semester sequential courses in analysis, tracing, and problem solving including close analysis of AC and DC circuits Special emphasis on circuit tracing and solution of electrical problems using mathematical approaches 3 Cr (3-0) *Prerequisite or Corequisite ET 11*

ET 21
ELECTRONICS—THEORY II
Continuation of ET 11 basic theory covering vacuum tubes and solid state devices as well as circuits using these devices, advanced electrical and electronic measuring instruments 5 Cr (5-0) *Prerequisite ET 11, MAT 103*

ET 22
ELECTRONICS—APPLICATIONS II
Continuation of ET 12 construction and testing of vacuum tube and solid state systems such as amplifiers, detectors, theory and operation of laboratory testing equipment including gain, distortion, frequency response and power output measurements, 3 Cr (0-9) *Prerequisites or Corequisites ET 12, ET 21*

ET 23
BASIC ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 14, complete analysis of electronic circuits featuring design and component selections as well as more advanced circuit checking and testing 3 Cr (3-0) *Prerequisites or Corequisites ET 14, ET 21*

ET 33
INTERMEDIATE ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 23, closer analysis of more complicated circuitry including pulse techniques and pulse generators, blocking oscillators, multivibrators and shaping networks, integrating and differentiating networks 3 Cr (3-0) *Prerequisites or Corequisites ET 23, ET 34*

ET 34
ELECTRONICS—THEORY III
Continuation of ET 21, detailed study of solid state and vacuum tube circuits and devices, and includes microwaves, wave propagation, transmission lines, gating and logic circuits 5 Cr (5-0) *Prerequisites ET 21, MAT 104*

ET 37
ELECTRONICS—APPLICATIONS III
Continuation of ET 22, construction and analysis of more sophisticated solid state and vacuum tube equipment, use of more advanced types of lab instruments, laboratory report writing 3 Cr (0-9) *Prerequisites or Corequisites ET 22, ET 34*

ET 41
CALIBRATION AND STANDARDIZATION
Principles of Electronic instrument calibration and standardizing techniques The position and purpose of the National Bureau of Standards Instruments used in the school Standards Laboratory 3 Cr (3-0) *Prerequisite ET 34*

ET 44
ADVANCED CIRCUIT ANALYSIS
Close analysis of wave and pulses as found in color television, alignment of electronic circuits, including color television 3 Cr (3-0) *Prerequisite or Corequisite ET 47*

ET 47
ELECTRONICS THEORY IV
Systems and waveform analysis, includes cathode-ray display devices, laboratory type instruments, T V and servo systems, computer principles 5 Cr (5-0) *Prerequisite: ET 34*

ET 48
ELECTRONICS—APPLICATIONS IV
Practical applications of advanced types of precision electronic instruments, including waveform measurements, signal and circuit tracing, dynamic measurements of systems performance. 3 Cr. (0-9). *Prerequisites or Corequisites: ET 37, ET 47.*

ENGLISH (ENG)

ENG 01
COMMUNICATIONS I
Foundation in oral skills: propaganda, material fallacies, and small group dynamics. Development of writing competencies related to vocational objectives. 48 Hrs. (3-0).

ENG 02
COMMUNICATIONS II
Continuation of ENG 01. Studies in the dynamics of the mass media 48 Hrs. (3-0). *Prerequisite: ENG 01*

ENG 10
BASIC ENGLISH
Intensive review of English grammar and the basic principles of composition. No credit 48 Hrs (3-0).

ENG 11
LANGUAGE AND COMPOSITION I
Primary emphasis on the principles of expository writing through examination of essays Studies in the structure and the development of the English language 3 Cr. (3-0), 48 Hrs.

ENG 12
LANGUAGE AND COMPOSITION II
Continuation of ENG 11 with writing of expository and critical essays Studies in mass media. Principles of research 3 Cr. (3-0), 48 Hrs. *Prerequisite: ENG 11*

ENG 13
TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports for business and industry. 3 Cr. (3-0), 48 Hrs. *Prerequisites: ENG 12 or equivalent*

ENG 101
ENGLISH COMPOSITION I
Basic composition involving language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. 3 Cr. (3-0).

ENG 102
ENGLISH COMPOSITION II
Continues the writing principles of ENG 101 and includes the study of other modes of expression. 3 Cr (3-0). *Prerequisite: ENG 101*

ENG 105
SHORT STORY WRITING
Development of skills in writing imaginative prose and in presenting short stories for class criticism and review. 3 Cr. (3-0).

ENG 201
HISTORY OF ENGLISH LITERATURE I
The works of major English writers from Chaucer to the beginning of the Romantic Period with emphasis upon intellectual, political and literary developments. 3 Cr. (3-0). *Prerequisite ENG 102*

ENG 202
HISTORY OF ENGLISH LITERATURE II
The works of major English writers from the Romantic Period to the Modern with emphasis upon intellectual, political and literary developments 3 Cr. (3-0) *Prerequisite: ENG 102.*

ENG 211
FUNDAMENTALS OF SPEECH
Basic physiology of speech. Oral reading; composition and delivery of expository speeches for different types of audiences. 3 Cr. (3-0).

ENG 252
WORLD LITERATURE
The reading of literature expressing western man's belief in the paramount importance of the individual Includes a survey of representative works of continental Europe to the present 3 Cr (3-0). *Prerequisite ENG 102*

ENG 290
SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr (1 to 3-0)

ENVIRONMENTAL SCIENCE (ESC)

ESC 10
ENVIRONMENTAL SCIENCE
Designed especially for the non-science student who wants to develop an ability to understand environmental systems and problems from a scientific viewpoint Covers many aspects of land, water, and air pollution and its relation to living organisms, especially man. 3 Cr (3-0), 48 Hrs.

FOOD AND HOSPITALITY (FH)

FH 10
INTRODUCTORY FOODS
Introduction to food service industries Basic principles of food preparation are investigated Protein, carbohydrate, and fat cookery. 3 Cr. (2-3).

FH 11
NUTRITION
Sources and functions of nutrients and how they relate to bodily functioning Dietary essentials of an optimum diet Includes nutritive requirements for each age stage of the life cycle 3 Cr (3-0).

FH 20
QUANTITY FOOD PREPARATION
Cooking foods in quantity. The reasons for preparing certain foods in certain ways and which commercial equipment will produce the best product 3 Cr (2-3).

FH 21
MENU PLANNING AND COST CONTROL
Nutritional meals for various age, economic, cultural, and religious groups, menus for commercial, industrial, school, institutional food services, food preferences of customers; merchandising techniques, cost controlling 3 Cr (3-0)

FH 22
FRONT OFFICE MANAGEMENT AND HOUSEKEEPING
Introduction to hotel and motel management, managing a front office, including promotion, guest registration, and cost control, science and art of housekeeping and personnel management 3 Cr (2-3)

FH 23
DIET THERAPY
In depth study of the principles of therapeutic diets Includes medical terminology, tours of community health services, and familiarity with diet manuals Students learn interviewing and counseling techniques and sources of professional up-dating information 3 Cr (3-0)

FH 30
FOOD AND HOSPITALITY WORK EXPERIENCE PRACTICUM (no credit)
Prior to the beginning of the fourth semester the student must complete 120 hours of employment in the food and hospitality industry Evaluation by the employer, a written report by the student, and discussion of the experience with an instructor are required upon completion of the work experience

FH 31
HOSPITALITY MANAGEMENT & THEORY
Supervised practical experience in various areas of food and hospitality management and production Lecture and discussion of work schedules, employer-employee relations, food purchasing and preparation, supervision and training of personnel, menu planning and other subjects related to the student's choice of practicum 3 Cr (1-6)

FH 32
PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing Proper procedures for good storage and sanitation Training of staff in proper procedures to assure production of safe food 3 Cr (3-0)

FH 33
HOSPITALITY MERCHANDISING
Techniques of sales, merchandising and promotion as applied to food and lodging establishments 3 Cr (3-0)

FH 40
EQUIPMENT AND LAYOUTS
Familiarizes students with all the latest pieces of equipment, and ways to lay out facilities for best production, service, safety and sanitation 3 Cr (3-0) *Prerequisites FH 10, FH 20*

FH 41
SUPERVISION, WORK SIMPLIFICATION & INCENTIVES
Analysis of concepts of supervision and its inter-personal relationships, motivations, manual motions, work place layouts, production job analysis and evaluation, establishing work loads 3 Cr (3-0)

FH 42
BEVERAGE MANAGEMENT & CATERING
Techniques used in restaurant management related to beverages, and in bar management, consideration of quality in beverage service Management of the catered meal Preparation and presentation of classic and international cuisines 3 Cr (2-3)

FOREST TECHNOLOGY (FR)

FR 11
DENDROLOGY
Classification, identification, and distribution of woody plants in the United States, with special emphasis on species of local commercial importance 3 Cr (2-3)

FR 13
FOREST MENSURATION
Measurement of standing trees, of logs and of other cut wood products; the determination of the contents of these products in terms of board feet, cubic feet, cords, and pounds The measurement of growth in trees and forests 3 Cr (2-3)

FR 15
FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees The stem structure of trees and the identification of commercial tree species based on microscopic characteristics of wood 3 Cr (2-3)

FR 21
PHOTOGRAMMETRY AND FOREST SURVEYING I
Introductory study of the basic techniques of photogrammetry, photo-interpretation, introduction to surveying, including the fundamentals of plane surveying and the use and care of equipment 3 Cr (1-6)

FR 26
FOREST ECOLOGY AND WILDLIFE MANAGEMENT
Introduction to Ecology, upon which the management of forest and wildlife resources may be based Increases the student's understanding of the ecological relationship of forest and wildlife communities 3 Cr (2-3)

FR 28
ADVANCED FOREST MENSURATION
Quality determination of logs and trees Estimating volumes of large timber areas by different sampling techniques The use and interpretation of aerial photos in forest surveys 3 Cr (2-3)

FR 32
FOREST SURVEYING II
Theory and practice of plane surveying techniques for application in property and boundary surveys, map making, construction surveys, and computations Special emphasis on forestry applications of these principles 3 Cr (2-3) *Prerequisite FR 21*

FR 33
EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use of forest operations: 3 Cr. (2-3).

FR 36
TIMBER HARVESTING
The felling, skidding, and transportation of timber products from the woods to the point of manufacture Application of modern logging methods and techniques, including the breakdown of entire tree stems into lengths and units of highest economic values. 3 Cr. (2-3).

FR 38
FOREST PROTECTION
The causes, effects, and methods of control of forest fires. The identification, effects and control of other harmful agents, principally insects and diseases 3 Cr (3-0).

FR 42
FOREST PRODUCTS
The conversion of round timber products into a semi-finished state, and the manufacture of these raw materials into finished consumer products. Includes the seasoning of lumber and the preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FR 46
SILVICULTURE
The study of forestry practices and systems used in the establishment and management of trees for the sustained production of timber products. 3 Cr. (2-3).

FR 48
FOREST LAND MANAGEMENT AND RECREATION
Basic concepts of multiple use management of publicly and privately owned forest lands. Shows the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

GEOLOGY (GEL)

GEL 105
PHYSICAL GEOLOGY
Basic concepts in the study of the Earth; relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents and the ocean basins. 4 Cr. (3-3).
rocks, landforms, continents and the ocean basins 4 Cr (3-3).

GEL 106
HISTORICAL GEOLOGY
Origin of the Earth, evolution of its crust, and the development and evolution of life thereon; relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment, relative and absolute age dating of the Earth. 4 Cr (3-3). *Prerequisite: GEL 105.*

GEL 290
SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

GOVERNMENT (GOV)

GOV 201
AMERICAN GOVERNMENT—NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Our federal system as it has developed 3 Cr. (3-0).

GOV 202
STATE AND LOCAL GOVERNMENT
State and local governmental institutions, their functions and responsibilities, intergovernmental relations. 3 Cr (3-0).

GOV 290
SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor 1-3 Cr (1 to 3-0).

GRAPHIC ARTS (GA)

GA 13
LAYOUT AND DESIGN
Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 4 Cr (2-6).

GA 14
PRINCIPLES OF TYPOGRAPHIC DESIGN
Training in conventional and modern layouts as applied to solution of problems in printing typography. 4 Cr. (2-6).

GA 25
PROCESS CAMERA
Concepts and techniques of darkroom procedures for reproduction of line and halftone copy on process cameras. 4 Cr (2-6).

GA 27
FILM ASSEMBLY AND PLATEMAKING
A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. Theory and application relating to various types of plates and processing procedures and register requirements of stripping and platemaking. 4 Cr. (2-6).

GA 34
PRINTING SUBSTRATES AND FINISHING OPERATIONS
Identification, selection, and relationships of films, foils, paper and board stocks, and non-printing conversions for the printing, publishing, and allied industries 4 Cr. (2-6).

GA 38
PRINTING PRESSES
Correlation of printing press operation, ink mixing and matching, registration, preventive maintenance for quality analysis 4 Cr (2-6)

GA 42
PRINTING ESTIMATING PRACTICES
Lab class offering experience in estimating jobs, writing specifications and planning jobs for production 4 Cr (2-6)

GA 43
PRINTING PRODUCTION PRACTICES
Lab instruction relating to studies in first three semesters, firsthand opportunity to forecast production, route and plan, schedule, dispatch inspect, control stores and stock, material handling, personnel management and industrial engineering 4 Cr (2-6)

GA 44
INDEPENDENT STUDY
Under the direction of the staff, student selects and develops comprehensive independent study project of own design Project must be approved by student's advisor and Division Director 2 Cr (0-6)

HEAVY CONSTRUCTION EQUIPMENT SERVICE & OPERATION (SO)

SO 11
SERVICE AND OPERATION I (8 weeks)
Introduction to heavy equipment mechanics, starting with basic tools, micrometers, lifting equipment, and progressing into complete engine nomenclature and overhaul 216 Hrs (5-22)

SO 12
SERVICE AND OPERATION II (8 weeks)
Basic vehicle electrical systems including electro-magnetism, ignition circuits, starting circuits, and electric trouble shooting 216 Hrs (5-22)

SO 23
SERVICE AND OPERATION III (8 weeks)
Introduction to the service and repair of diesel engines, various types of clutches, and gear-type transmissions 192 Hrs (5-19)

SO 24
SERVICE AND OPERATION IV (8 weeks)
Introduction to the service and repair of torque converters, differentials and final drives Maintenance of various seals and bearings 192 Hrs (5-19)

SO 35
SERVICE AND OPERATION V (8 weeks)
Study of the various types of hydraulic systems used on heavy construction equipment Includes a study of fuels and lubricants 216 Hrs (5-22)

SO 36
SERVICE AND OPERATION VI (8 weeks)
Introduction to basic construction surveying, construction blueprint reading, and grade stake reading Various types of brake systems used on heavy equipment Operation and service of several types of heavy equipment Advanced electrical circuits and trouble-shooting 216 Hrs (5-22)

SO 43
SERVICE AND OPERATION VII (8 weeks)
Operation of various types of heavy construction equipment such as dozers, loaders, motor graders, and scrapers Service of the machines operated 240 Hrs (5-25)

SO 44
SERVICE AND OPERATION VIII (8 weeks)
A continuation of SO 43 emphasizing the development of skills as an equipment operator or mechanic 240 Hrs (5-25)

HISTORY (HIS)

HIS 103
WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from ancient times until the 18th Century 3 Cr (3-0)

HIS 104
WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from the 18th Century until the present 3 Cr (3-0)

HIS 201
UNITED STATES—SURVEY I
Political, economic, and social development of the United States from colonial times to, and including, the Civil War and the Reconstruction Period 3 Cr (3-0)

HIS 202
UNITED STATES—SURVEY II
Political, economic, and social development of the United States from 1877 to and including the current Civil Rights Movement 3 Cr (3-0)

HIS 212
TWENTIETH CENTURY EUROPEAN
Major events from the First World War to the present with emphasis on industrialization, nationalism, social upheaval, totalitarianism, anti-colonialism, and war 3 Cr (3-0).

HIS 290
SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies Admission by permission of the instructor 1-3 Cr (1 to 3-0)

JOURNALISM (JO)

JO 10
NEWS WRITING
Includes short review of English grammar and develops techniques of news gathering and newspaper news writing Stories of various types are written to typical "deadlines" 3 Cr (3-0)

JO 11
PHOTOGRAPHY FOR NEWSMEN
Creating effective pictures for news stories and advertising; camera and darkroom techniques; lab practice. 2 Cr. (1-3).

JO 12
NEWS REPORTING
News reporting peculiar to newspapers, prosaic hospital news, obituaries, rural correspondents' stories, social news, police stories, court house sources; timeliness and accuracy. 3 Cr. (3-0).

JO 13
FEATURE WRITING
Techniques of employing reader analysis, research, in-depth interviews, photography, and graphic writing skills in feature and editorial preparation; lab practice. 3 Cr. (3-0).

JO 14
EDITING
Techniques of editing material for newspapers, magazines, and other publications; headline writing, copyreading; layout and typography; printing processes, lab practice. 3 Cr. (3-0).

JO 16
NEWSPAPER MANAGEMENT AND COMMUNITY RESPONSIBILITY
Inter-relation of news management, advertising, editorial policy, and community responsibility. 3 Cr. (3-0).

JO 21
IN-SERVICE TRAINING I
Supervised, on-the-job training with the Office of College Information or on the staff of student publications. 2 Cr. (0-6).

JO 22
IN-SERVICE TRAINING II
On-the-job training in the Office of College Information or on the staff of student publications. Students must have demonstrated the ability to handle writing assignments with minimum supervision. 2 Cr. (0-6).

JO 23
IN-SERVICE TRAINING III
Editorial responsibilities on student publications or substantial assignments with the Office of College Information requiring initiative and proficiency. 2 Cr. (0-6).

JO 30
ADVERTISING
A study of the impact of advertising on the American economy and its relationship to the morality and ethics of society; includes the preparation of newspaper advertisements. 3 Cr. (3-0).

LIBRARY SCIENCE (LS)

LS 10
INTRODUCTION TO BOOKS AND LIBRARIES
Survey of historical development of books, libraries, and librarianship; evolution of alphabet; early forms of books; libraries in ancient world, middle ages and modern times; invention of printing. 3 Cr. (3-0).

LS 12
INTERNSHIP
Practical experience in library activities; circulation, reference, acquisition; work in service areas; adult, children, reference extension programs, bookmobile, observation made to determine area best suited for student. 3 Cr. (0-9). *Prerequisites: LS 15 and LS 30*

LS 15
TECHNICAL SERVICES I
Theory and experience in tasks in general areas of technical services: cataloging and classification, mechanical preparation of material, acquisition of material, maintenance of library material, book stock control, preparation for bindery. Dewey Decimal Classification and Sears Subject Headings. 3 Cr. (2-3).

LS 30
TECHNICAL SERVICES II
Theory and experience in tasks in general areas of technical services: cataloging and classification, mechanical preparation of material, acquisition of material, maintenance of library material, book stock control, preparation for bindery. Library of Congress Classification and Library of Congress Subject Headings. 3 Cr. (2-3). *Prerequisite: LS 15.*

LS 31
AIDS AND PRINCIPLES OF BOOK SELECTION
Introduction to principles of selection; basic aids and reference tools used, evaluation of a library's material in relation to its public. 3 Cr. (3-0).

LS 41
INTRODUCTION TO REFERENCE
Philosophy and techniques of reference work, use of basic reference materials. 3 Cr. (3-0).

LS 44
THE LIBRARY: ITS PATRONS AND PURPOSE
Examination of social relationships of library and library worker to patrons, community, country, college campus, public schools. 3 Cr. (3-0).

LS 45
AUDIO-VISUAL MATERIALS, CATALOGING AND CLASSIFICATION
Use of library film, recordings, duplicating devices and projection equipment, cataloging and classification of materials. 3 Cr. (2-3). *Prerequisite: LS 15.*

MACHINIST (MG)

MG 10
BASIC MACHINE SHOP I (8 weeks)
Theory and practice of elementary bench work, use of hand tools; operation and care of drill press, shaper and elementary blueprint reading. 200 Hrs. (1-24).

MG 15
BASIC MACHINE SHOP II (8 weeks)
Engine lathe and milling machine, basic machining operations on the lathe and milling machine with emphasis placed on safety and care of the machines. 200 Hrs. (1-24).

MG 20
BASIC MACHINE SHOP III (8 weeks)
Care and sequence of operations, turret lathes and automatic screw machines 200 Hrs (1-24)

MG 25
BASIC MACHINE SHOP IV (8 weeks)
Use and care of precision measuring equipment, advanced blueprint reading, freehand sketching and inspection practices 200 Hrs (1-24)

MG 30
ADVANCED MACHINE SHOP I (8 weeks)
Use of grinding machines for cylindrical, internal and surface grinding 200 Hrs (1-24.)

MG 35
ADVANCED MACHINE SHOP II (8 weeks)
Theory and practice of thread and tool cutter grinders, with various phases of heat treating, normalizing, carburizing, annealing, hardening, and tempering of various tool steels 200 Hrs (1-24)

MG 40
ADVANCED MACHINE SHOP III (8 weeks)
Advanced training on drill press, engine lathe milling machine and shaper, with emphasis on indexing, gear cutting and precision boring 200 Hrs (1-24)

MG 45
ADVANCED MACHINE SHOP IV (8 weeks)
Advanced training on drill press, engine lathe, milling machine shaper, with emphasis on precision boring and die making 200 Hrs (1-24)

MATHEMATICS (MAT)

MAT 03
BASIC GEOMETRY
Fundamental concepts of lines, angles, triangles, circles, and geometric relations Fundamentals of deductive proof and basic constructions Intended for those students without previous coursework in geometry May be used as an optional elective 48 Hrs (3-0)

MAT 10
TECHNICAL MATHEMATICS I
Arithmetic operations with whole numbers, common and decimal fractions, per cent, basic principles of measurement, and other selected topics Intended for certificate students 48 Hrs (3-0)

MAT 15
GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics Intended for aviation maintenance technicians (AC) 48 Hrs (3-0)

MAT 20
TECHNICAL MATHEMATICS II
Selected topics from algebra, geometry, and right triangle trigonometry Special emphasis on applications to practical problems in the student's area of concentration Intended for certificate students May be used as an optional elective 3 Cr (3-0). *Prerequisite MAT 10*

MAT 25
INTERMEDIATE ALGEBRA
Properties of real numbers, polynomials, fractions, exponents, roots, and radicals, first and second degree equations and inequalities in one variable, functions, graphs, and other selected topics Intended for students without a strong working knowledge of algebra 3 Cr (3-0). Cannot be used as general studies core requirement *Prerequisite One year of high school algebra or placement by mathematics exam*

MAT 100
INTRODUCTION TO MATHEMATICS I
Explorations with number and geometric patterns, mathematical recreations, flow charts, sets, logic, systems of numeration, and an introduction to algebra Intended as a general education course for non-mathematics or science majors 3 Cr (3-0). *Prerequisite: One year of high school algebra*

MAT 103
COLLEGE ALGEBRA
Properties of real numbers, equations and inequalities, systems of equations, matrices, determinants, mathematical induction, binomial theorem, sequences, basic right triangle trigonometry, sine and cosine laws Designed for general studies and technology students desiring a thorough pre-calculus algebra background 3 Cr (3-0) *Prerequisite: Two years of high school algebra, MAT 25, or placement by examination*

MAT 104
COLLEGE TRIGONOMETRY
Continuation of MAT 103 Circular, trigonometric, inverse, and logarithmic functions, complex numbers, probability and other selected topics 3 Cr (3-0). *Prerequisite MAT 103 or placement by examination*

MAT 109
APPLIED CALCULUS
Relations and functions (conics), limits, derivatives and integration of algebraic functions, trigonometric functions and transcendental functions, methods of integration and applied problem solving Is excellent preparation for students who intend to sit for the Engineer in Training Examination 3 Cr (3-0) *Prerequisite College Algebra and trigonometry*

MAT 112
CALCULUS I—INTRODUCTION TO DIFFERENTIAL AND INTEGRAL CALCULUS
Derivatives, continuity, slopes, velocity, rates of change, curve sketching, chain rule, related rates, maximum-minimum theorems, differentials, integration, and some applications of integration 4 Cr (4-0) *Prerequisite MAT 104, or permission of instructor*

MAT 200
INTRODUCTION TO MATHEMATICS II
Mathematical systems, properties of integers, rational, real and complex numbers, selected topics from geometry, probability, and statistics. Intended as a general education course for non-mathematics or science majors. MAT 100 is not required. 3 Cr. (3-0). *Prerequisites: One year of high school algebra.*

MAT 201
ELEMENTARY STATISTICS I
An introduction to frequently applied statistical methods; descriptive statistics, frequency distributions, elementary probability, binomial and normal distributions, Central Limit Theorem, statistical inference and tests of hypotheses, Chi-square and t-tests. Intended for general studies and technology students desiring a basic working knowledge of statistics. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MAT 202
ELEMENTARY STATISTICS II
Continuation of MAT 201, with emphasis on applied statistical techniques and design of experiment; Student T, Chi-square, F-tests, linear regression, correlation, and models; analysis on enumerative data; analysis of variance; non-parametric statistics To be offered regularly in the Spring Term of even numbered years. 3 Cr. (3-0). *Prerequisite. MAT 201.*

MAT 211
CALCULUS II
Techniques of integration, limits, sequences and series, vectors, differentiation—partial derivatives, multi-variable differentiation, directional derivatives. 4 Cr. (4-0). *Prerequisite: MAT 112.*

MAT 220
MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence, vector spaces, linear transformations, characteristic equations of a matrix, bilinear, quadratic, and Hermintian forms. Recommended for computer science, science, and technology students. May be used as a core requirement or general elective for general studies students. 3 Cr. (3-0). To be offered regularly in the Spring Term of odd numbered years. *Prerequisite: Two years of high school algebra, MAT 103, or permission of instructor.*

MAT 290
SPECIAL TOPICS IN MATHEMATICS
Special arrangements of individuals or groups to study topics of interest, i.e., Differential Calculus, Modern Algebra, Modern Geometry. Arrangement to be made through instructor and Division Director. One to four credits per course.

OFFICE MACHINE REPAIRS (OR)

OR 12
OFFICE MACHINE REPAIR I
Typewriter operation; functional testing; trade history; machine development, rubber parts, ribbons; machine models; training to perform periodic preventive maintenance inspections 384 Hrs. (2-22).

OR 22
OFFICE MACHINE REPAIR II
Analysis of typewriter sections and understanding of components; dis-assembly and reassembly of machines to develop manipulative skills; trade procedures and job standards; drive, power roll, type action, and controlled operations of electric typewriters. 432 Hrs. (3-24).

OR 32
OFFICE MACHINE REPAIR III
History, business use, and sectional components of adding machines; operation and testing of ten-key and full keyboard adding machines; servicing, adjusting, and repair of mechanical problems. 432 Hrs. (3-24).

OR 43
OFFICE MACHINE REPAIR IV
Stencil duplicating arts; duplicator operation and service; introduction to office copiers; office machine business management program. 432 Hrs. (3-24.)

OPERATING ROOM TECHNICIAN (OT)

OT 02
BODY STRUCTURE AND FUNCTION
8asic structure and function of the body 80 Hrs (5-0).

OT 11
OPERATING ROOM TECHNIQUES I
General introduction to hospitals and operating rooms. Job descriptions and qualifications. Professional, legal, moral, and religious responsibilities. Concepts of anesthesiology, asepsis, and safety Related housekeeping skills. Personal health and hygiene. Techniques and skills of the operating room technician. Selected learning experiences in the operating room. 320 Hrs. (10-10).

OT 22
OPERATING ROOM TECHNIQUES II
The diagnosis of procedures, positioning, equipment, materials, and anesthesia used in the various specialties with selected experiences in the operating room. 464 Hrs. (5-24).

ORNAMENTAL HORTICULTURE (OH)

OH 11
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as they are related to the use of lime and fertilizers. Synthetic soils and moisture-air relationships included 3 Cr (2-3).

OH 12
WOODY PLANTS I
An introduction to the study of woody plants grown in nurseries for landscape purposes and of those found in arboretums, woodlands, and fields of the various geographical areas or regions of the United States. 2 Cr. (1-3).

OH 13
HERBACEOUS PLANTS
A study of the classification, identification, and general culture of perennials, bulbs, and roses Landscape use and design of flower borders is practiced 3 Cr (2-3)

OH 20
GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production with emphasis on environmental control, plant culture, facilities, and equipment Includes demonstration of techniques 3 Cr (2-3)

OH 21
NURSERY PRODUCTION I
Stresses the theory and practices necessary to produce profitable nursery stock The maintenance of a productive nursery, soil, crop, and land rotations 3 Cr (2-3)

OH 24
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means with applications in floriculture production, nursery production, and forestry 3 Cr (2-3)

OH 26
WOODY PLANTS II
Continuation of OH 12 Additional plants are studied with major emphasis on the study of deciduous trees, shrubs, vines, ground covers, and their varieties and cultivars 3 Cr (2-3) *Prerequisite OH 12*

OH 30
FLORAL DESIGN I
Instruction and application of principles in the art of floral design, including form, styles, and composition Includes designing floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages 3 Cr (1-6)

OH 31
GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants with emphasis on techniques used for important commercial crops. Each crop will be grown by students using school facilities 3 Cr (2-3)

OH 33
HOUSE AND CONSERVATORY PLANTS
The identification, culture, and propagation of florist's potted plants and conservatory plants Principles and construction of terrariums and dish gardens included 3 Cr (2-3)

OH 35
NURSERY PRODUCTION II
Production schedules are correlated with nursery land use Considers factors affecting choice and quantities of stock to be grown, as well as development of cost finding and price establishing 3 Cr (2-3)

OH 37
PLANT INSECTS & DISEASES
Study of the insects and diseases of horticulture crops The nature, structure, growth habits, injurious effects, and control of insects and related forms The most common and injurious plant diseases are studied for identification and control 3 Cr (2-3) *Prerequisite BIO 03*

OH 39
FLORAL DESIGN II
A continuation of OH 30 with the addition of designing dried and permanent arrangements Stresses shop layout and familiarity with routine procedures in the operation of a flower shop 3 Cr (2-3) *Prerequisite OH 30*

OH 41
GREENHOUSE CROP PRODUCTION III
Production of potted plants, bedding plants, and other crops using commercial techniques Includes production, planning, crop rotation, and the role of management 3 Cr (2-3)

OH 42
WOODY PLANTS III
Advanced study of plant identification Emphasis on the study of broad leaved and narrow leaved evergreens—their varieties and cultivars 3 Cr (2-3) *Prerequisites OH 12 and OH 26*

OH 43
FLOWER SHOP OPERATION
Emphasizes buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop Lab practice in perfecting design techniques and originality 3 Cr (2-3)

OH 45
LANDSCAPE CONSTRUCTION
Establish landscape features within the horticulture gardens of the College Establishment and maintenance of turf areas is included 3 Cr (1-6)

OH 46
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment to include small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment 3 Cr (2-3)

OH 48
LANDSCAPE MAINTENANCE
Covers aspects of turf management and tree care (arboriculture) Establishment and maintenance of different types of turf areas Emphasis on golf course, institutional, park, and home turf areas Shade tree planting, climbing, guying, pruning, fertilizing, cabling, and bracing Stresses evaluation of ornamental trees and general care 3 Cr (2-3) *Prerequisites OH 12 and OH 37*

OH 49
LANDSCAPE DESIGN
Covers the principles and problems of landscape design Emphasis on the proper and effective use of plant materials in developing domestic and public areas to make them as attractive and utilitarian as possible, Includes basic drawing and drafting principles 3 Cr (1-6) *Prerequisites OH 12 and OH 26*

PHILOSOPHY (PHL)

PHL 101
INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major perennial problems in philosophy: Meaning and Truth, Perception and External World, God, Mind and Body. 3 Cr. (3-0).

PHL 102
ETHICS AND POLITICAL PHILOSOPHY
Status of deontological language, free will and responsibility, major issue in contemporary political philosophy. 3 Cr. (3-0).

PHYSICAL EDUCATION (PE)

PE 105
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 106
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 107
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 108
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 109
PERSONAL AND COMMUNITY HEALTH
Up-to-date information concerning personal and community health problems of the college student today. 2 Cr. (2-0).

PHYSICS (PHY)

PHY 20
PHYSICS SURVEY
Covers most of the following topics, selected to meet the needs of the majority of students in any particular section: matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat, sound, light; optics; magnetism; electricity; atomic phenomena. 48 Hrs. (3-0). *Prerequisite: MAT 20.*

PHY 21
PHYSICS—MECHANICS
Lecture, demonstrations, problem-solving course in elementary mechanics: basic concepts of scientific method, the metric system; vectors, translatory motion; rotary motion, work, power, energy; physical properties of liquids, solids, gases. 4 Cr. (3-3), 96 Hrs. *Prerequisites: MAT 104 or equivalent and one year of high school science.*

PHY 22
INTRODUCTION TO METALLURGY
Introduction to science of physical metallurgy; chemical composition, crystallization, effects of mechanical treatment drawing, rolling, shaping; thermal or heat treatment. 4 Cr (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 31
PHYSICS—ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction; basic principles of electricity, 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 33
PHYSICS—HEAT AND LIGHT
Basic principles of heat and its measurements: Thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat; study of light including refraction, illumination, optics and color. 4 Cr. (3-3), 96 Hrs. *Prerequisite: PHY 21.*

PHY 105
GENERAL PHYSICS I
Principles of mechanics and heat. Calculus will be used whenever this method leads to a more direct solution. 4 Cr (3-3). *Corequisite. MAT 112.*

PHY 106
GENERAL PHYSICS II
Continuation of PHY 105. Principles of electricity, magnetism, wave motion, optics and sound. 4 Cr. (3-3). *Prerequisite: PHY 105. Corequisite: MAT 211.*

PHY 111
INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light with special emphasis on electricity and magnetism 4 Cr (3-3)

PHY 113
RADIATION PHYSICS
The fundamentals of electrical and radiation physics and the principles underlying the operation of X-ray equipment and auxiliary devices 3 Cr (3-0) *Prerequisite PHY 111*

PHY 210
MECHANICS
Intermediate course in kinematics and dynamics Differential and integral calculus are used extensively in derivations and problems 4 Cr. (3-3) *Prerequisite PHY 106 and MAT 211*

PHY 220
MODERN PHYSICS
Atomic and nuclear physics including structures of atom and nucleus, radioactivity, fission and fusion, relativity; and the periodic table of elements 4 Cr (3-3) *Prerequisites PHY 106 and MAT 211*

PLUMBING AND HEATING (PL)

PL 10
PLUMBING AND HEATING I (8 weeks)
Introduction to Plumbing and Heating trade, use of hand and power tools, introduction to cast iron, terra cotta, copper, iron fiber, and etc Pipe fundamentals, safety procedures 192 Hrs (5-19)

PL 15
PLUMBING AND HEATING II (8 weeks)
Theory, materials, and methods for venting and draining plumbing systems, installation of septic systems, individual projects 192 Hrs (5-19)

PL 20
PLUMBING AND HEATING III (8 weeks)
Domestic hot water distribution, etc , basic science; basic steam and hot water heating, individual projects installing bathrooms, toilet rooms, etc 192 Hrs (5-19).

PL 21
PLUMBING AND HEATING IV (8 weeks)
Types of steamheating systems, types of hot water systems, boilers, piping, heat transfer equipment, accessories, individual plumbing and heating projects, estimating heat loss 192 Hrs (5-19)

PL 30
PLUMBING AND HEATING V (8 weeks)
Introduction to blueprint reading and pipe drafting, material ordering, repair work, rigging, individual projects and live work Skills required to calculate heat loss Practicum involves calculating, designing, and laying out hot water heat systems 192 Hrs (5-19)

PL 31
PLUMBING AND HEATING VI (8 weeks)
Advanced blueprint reading, estimating of materials, design and layout of plumbing and heating systems, individual projects and live work involving Hydronic Hot Water systems, gas, oil and coal fired systems 192 Hrs (5-19)

PL 40
PLUMBING AND HEATING VII (8 weeks)
Use of lead working tools, bending lead pipe, preparing lead pipe for wiping, introduction to lead wiping, individual projects and live work Practicum offers the student an opportunity to design, layout and install functioning steam mini-systems System maintenance and trouble-shooting are emphasized 192 Hrs (5-19).

PL 41
PLUMBING AND HEATING VIII (8 weeks)
Wiping round, branch, and vertical lead joints, building maintenance, use of fundamental sheet metal tools, materials and supplies, the functions of hot air heat systems and the design, layout and installation of hot air heat systems, live work 192 Hrs (5-19)

PRACTICAL NURSING (NU)

NU 01
NURSING RELATIONSHIPS
Orientation to the program, the learning process, communication skills, concepts of health, major health problems and agencies, trends in nursing, roles and characteristics of nurses, nursing organizations, legal and religious implications, range and scope of functions of the nurse, administrative lines, fundamentals of ethical, psychological, social and human relationships 48 Hrs (3-0)

NU 02
SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures, common pathogens, their characteristics and methods of control, common elements found in the body and their relation to the body in health, the relation of physical properties to the functioning body, the process of metabolism and homeostasis, psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs at all ages and under various conditions, the relation of nutrition to health, associated vocabulary 96 Hrs (6-0).

NU 10
FOUNDATIONS OF NURSING
Basic nursing knowledge and skills common to all areas of nursing practice Emphasizes the basic need of patients, utilizing individual patient situations including physical hygiene, comfort, rest, nutrition, the process of developing, implementing, and evaluating nursing care plans is studied and used in patient care Includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis 288 Hrs (6-12)

NU 11
MEDICAL-SURGICAL NURSING—ELEMENTARY (15 weeks)
Principles of patient care dealing with general medical and surgical conditions. Emphasis on the adult patient in relation to his needs; the cause, treatment, and the prevention of illness; the nursing care involved. The student will be expected to function progressively as a contributing member of the nursing team, and to develop and carry out patient centered care plans geared to patient needs. Added skills are acquired in nursing procedures. 225 Hrs. (6-9).

NU 12
PARENTAL AND CHILD HEALTH (15 weeks)
Focuses on the concept that the family is the basic unit of society. Helps prepare the student for patientside experiences with prenatal, intrapartum and post partum mothers, and the well and ill child. Growth and development, history, current trends, and community agencies in parental and child health are included. Deviations from normal are considered, but the emphasis is on normal aspects. The student participates in the care of these individuals. 270 Hrs. (6-12).

NU 13
MEDICAL-SURGICAL NURSING—INTERMEDIATE
(15 weeks)
Continuation of NU 11. Further develops the knowledge and skills which enable the student to provide nursing care which meets the needs of patients of all ages with major health problems. Development of skills in assisting with critically ill, unconscious, moribund and mentally ill patients. 495 Hrs. (12-21).

NU 14
PRACTICUM
Students will be assigned to the cooperating institutions for three weeks between semesters to further develop skills, in basic nursing procedures and patient care. 90 Hrs. (0-30).

PRINTING (GP)

GP 01
COMPOSING I
Introductory applications of major composing systems; analysis of copy, layouts, and mechanicals. 128 Hrs. (2-6).

GP 02
PHOTOMECHANICAL I
Introductory applications of major process camera, film assembly, and platemaking operations. 128 Hrs. (2-6).

GP 03
PRESS AND BINDERY I
Introductory applications of major printing press and bindery operations. 128 Hrs. (2-6).

GP 04
COMPOSING II
Advanced study and applications on composing machines, copy-preparation principles, working layouts, and mechanicals. 128 Hrs. (2-6).

GP 05
PHOTOMECHANICAL II
Advanced study and applications on process cameras, film assembly, proofing, and plating. 128 Hrs. (2-6).

GP 06
PRESS AND BINDERY II
Advanced study and applications on ink mixing, lithographic presses, bindery equipment, and procedures. 128 Hrs. (2-6).

PSYCHOLOGY (PSY)

PSY 101
GENERAL PSYCHOLOGY
Introduction to the science of human behavior. 3 Cr. (3-0).

PSY 202
EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Individual differences, motivation and emotion. 3 Cr. (3-0) *Prerequisite: PSY 101 or permission of the instructor.*

PSY 205
ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis on their causes, symptoms, and course of treatment. Goal to study normal behavior by examining such behavior in distortion or in exaggeration. 3 Cr. (3-0) *Prerequisite: Permission of the instructor.*

PSY 210
SOCIAL PSYCHOLOGY
Interaction of individuals in their several group relations, the contacts of harmony, and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 215
DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span, with emphasis on basic principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0). *Prerequisite: PSY 101.*

PSY 290
SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

RADIOLOGIC TECHNOLOGY (RT)

RT 10
RADIOLOGIC TECHNOLOGY I
Basic concepts of ethical principles and medical structure Chemical constituents of processing a radiographic film and efficient darkroom (processing) procedures Theoretical and practical instruction on radiographic positioning of body structure and organs Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance, and time 5 Cr (3-13)

RT 11
RADIOLOGIC TECHNOLOGY II
Theory of x-ray technique Necessity of different radiographic views to avoid superimposition of structure The involvement of contrast media in relation to reactions, and contra-indications to these media Emphasis on nursing procedures as they relate to radiology 7 Cr (4-16)

RT 12
RADIOLOGIC TECHNOLOGY III
Create a working combination or establish a new combination of exposure factors using x-ray components to produce an interpretive film Advanced positioning of special radiographic views to demonstrate various anatomical parts Introduces the operating suite with relationship of medical aseptic technique, and radiographic procedures Emphasis on technical special radiographic procedures 10 Cr (5-15)

RT 13
RADIOLOGIC TECHNOLOGY IV
Organization, supervision, law, and finance related to radiology Emphasizes handling diseased and injured patients Introduces the role of radiation therapy in treatment of disease, effects on body tissue, and the methods of radiation therapy Basic concepts of scientific research 10 Cr (5-15)

RT 14
SUMMER SESSION
Internship in associated hospitals for twelve weeks 5 Cr (0-40)

SECRETARIAL SCIENCE (BS & ST)

BS 09
TYPEWRITING
For non-business students only, touch typing, accuracy, speed, report copy, business letters and reports 1 Cr 48 Hrs (0-3)

BS 14
SHORTHAND I
Basic Gregg shorthand, Diamond Jubilee system, outlines, proper techniques, fluency in reading and writing shorthand dictation 3 Cr (2-3)

BS 15
TYPEWRITING I
Basics of typewriting touch typing, mechanical parts, speed, accuracy, business letters and forms Students passing required standards may be exempt and may elect another subject 3 Cr 80 Hrs (2-3)

BS 17
CLERICAL PROCEDURES
Office duties, handling mail, filing, reception work, office communication systems, dvelopment of personal qualities necessary for success, self-evaluation, good working habits and attitudes, opportunity for personality development 160 Hrs (4-6)

BS 21
TYPEWRITING II
Advanced typing practices, production typing, special skill techniques, advanced letter writing and tabulation reports, legal forms and documents, clerical duties 3 Cr (2-3) *Prerequisite BS 15 or test qualification*

BS 23
OFFICE PRACTICE
Operation and practice of ditto, mimeograph, dictating, and transcribing machines, general office practice 2 Cr (2-1)

BS 24
SHORTHAND II
Continuation of BS 14 pre-transcription training, vocabulary, spelling, punctuation stressed 3 Cr (2-3) *Prerequisite BS 14 or test qualification*

BS 27
CLERICAL WORKSHOP
Advanced and office-level typewriting, typing of manuscripts, reports, office forms, statistics, production work, advanced office machines instruction and practice on duplicating equipment, dictation, transcription equipment, bookkeeping machines, electronic calculators 176 Hrs (5-6) *Prerequisites BS 15 and BS 17*

BS 31
TYPEWRITING III
Composing skills, report and manuscript typing, statistical reports, advanced production typing 3 Cr (2-3) *Prerequisite BS 21*

BS 34
SHORTHAND WORKSHOP
Speed and accuracy in dictation and transcription of business letters, business and industry dictation, business forms and office skills, medical, legal, technical shorthand specialization, basic executive skills 7 Cr (5-6) *Prerequisite BS 24*

BS 44
SECRETARIAL WORKSHOP
Advanced dictation and transcription skills, specialization in medical, legal, technical and executive fields, executive office functions, practical experience 9 Cr (6-9) *Prerequisite BS 34*

BS 45
OFFICE INTERNSHIP
Practical experience obtained through work assignments in college offices 1 Cr (0-3)

ST 30
MEDICAL TERMINOLOGY
An introduction of medical terminology with emphasis on etiology, symptomatology, pathology, and diagnostic procedures as related to secretarial functions 3 Cr (3-0)

SHEET METAL (SM)

SM 10
BASIC SHEET METAL (HAND/MACHINE)
Introduction to sheet metal working tools, metals, techniques, and safety regulations; instruction in related drafting and mathematics; accuracy in interpreting elementary blueprints; resistance welding 400 Hrs (5-20).

SM 20
INTERMEDIATE PROCESSES
Practical pattern drafting, including heating, air-conditioning and ventilation; construction principles and practices, roofing, spouting and flashing; related drafting instruction; live work from planning stage to completion 400 Hrs (5-20).

SM 30
BASIC COMMERCIAL SHEET METAL
Basic welding procedures for light metals, use and care of equipment, fabrication and repair of commercial equipment; ornamental sheet metal work; press working techniques, instruction in more costly metals, spray painting 400 Hrs (5-20).

SM 40
COMMERCIAL SHEET METAL
Introduction, theory and techniques of basic processes in plastics, principles, design, and fabrication of industrial and residential ventilation, precision layout, working to close tolerances, advanced theory on commercial sheet metal and work on power-driven machinery 400 Hrs (5-20)

SIGN PAINTING (SP)

SP 01
BASIC ALPHABETS
Use and care of sign materials; fundamentals of alphabets; skill in making elements with brush. 400 Hrs (1-24)

SP 04
COMMERCIAL SIGNS
Brush techniques in laying out and painting commercial signs, trucks, window lettering, masking, using bulletin colors and spray lacquers. 400 Hrs (1-24). *Prerequisites: SP 01, SP 15, SP 16.*

SP 12
GOLD LEAF
Preparing surfaces for all types of metallic leaf application; treatment of gold leaf on glass. 64 Hrs (1-3). *Prerequisites: SP 01, SP 15, SP 16*

SP 13
SILK SCREEN
Executing layout problems for knife-cut silk screens; running production with one man processor 64 Hrs. (1-3)
Prerequisites: SP 01, SP 15, SP 16

SP 14
BILLBOARD PICTORIALS
Enlarging pictorials; mixing paints of different medias; enlargements and painting 64 Hrs. (1-3).

SP 15
LETTER STROKES AND SHOWCARD LAYOUT
Continuation of practice in letter strokes; preparation of thumbnail sketches and showcard layout 400 Hrs (1-24). *Prerequisite. SP 01*

SP 16
COMMERCIAL SHOWCARDS
Continuation of thumbnail sketches and showcard layout, emphasis on quality with speed 400 Hrs (1-24). *Prerequisites SP 01, SP 15*

SOCIOLOGY (SOC)

SOC 101
INTRODUCTION TO SOCIOLOGY
Introduction to methods used in studying how people live together Dynamic relationships among society, culture and personality serve as focus for the course materials 3 Cr (3-0).

SOC 102
GENERAL ANTHROPOLOGY
Survey of the physical and cultural evolution of man and society Emphasizes the relationship of man's physical structure to behavior and comparative descriptions of recent primitive societies 3 Cr. (3-0).

SOC 201
MARRIAGE AND THE FAMILY
The history, structure, and functions of modern American family life, emphasizing dating, courtship, factors in marital adjustment, and the changing status of family members. 3 Cr (3-0) *Prerequisite: SOC 101*

SOC 203
INTRODUCTION TO SOCIAL WORK
Basic concepts of social welfare programs, social case work, and field work. Especially designed for students planning a career in social work. 3 Cr. (3-0). *Prerequisite: SOC 101*

SOC 205
URBAN SOCIOLOGY
The concept of community as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasizes characteristic institutions and problems of modern city life 3 Cr (3-0). *Prerequisite: SOC 101*

SOC 207
CRIMINOLOGY
The nature, genesis, and organization of criminal behavior from both group and individual viewpoints. Includes juvenile delinquency and the treatment of crime 3 Cr (3-0). *Prerequisite: SOC 101*

SOC 290
SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

TECHNICAL ILLUSTRATION (TI)

TI 21
PERSPECTIVE DRAWING
Instruction in one-point or parallel perspective, two-point or angular perspective projection method and measuring plan emphasized 4 Cr (2-6)

TI 23
RENDERING I
Shading of illustrations using various water base pigments to produce wash and opaque illustrations of geometric constructions 4 Cr (2-6)

TI 31
AXONOMETRIC DRAWING
Instruction in isometric, dimetric and trimetric projections, instruction in use of popular industrial drawing aids 4 Cr (2-6)

TI 33
COLOR
Color theory and training in the use and application of color, full color rendering of products, use of flat colors and color aids 2 Cr (1-3)

TI 34
RENDERING II
Continuation of TI 23, fundamental training and skills required to produce continuous tone drawings with airbrush 4 Cr (2-6)

TI 40
ILLUSTRATION PRACTICE
Training in rendering art for technical manuals and related art, combinations for rendering learned techniques, preparation of presentation folio 4 Cr (2-6)

TI 41
TECHNICAL DRAWING
Continuation of perspective and axonometric drawing course, production of illustration to meet employment requirements including assembly, exploded and cut-away views of mechanical objects 4 Cr (2-6)

TI 42
LAYOUT AND DESIGN
Fundamentals of layout, creation of sketches, designs, thumbnail sketches, comprehensives, with emphasis on technique, structure, mechanics, awareness, and communication 2 Cr (1-3)

TOOL DESIGN TECHNOLOGY (TD)

TD 21
TOOL DRAFTING (8 weeks)
Transition between drafting and tool design, drawings, techniques, purchased parts standards of shop drawings, material lists, selection of materials and heat treating of metals 4 Cr (4-12) *Prerequisite ED 11*

TD 30
CUTTING — TOOL DESIGN (8 weeks)
Design of single-edge cutting tools, boring bars and multiple-edge cutting tools 4 Cr (4-12)

TD 31
FIXTURE DESIGN (8 weeks)
Design of leaf and tumble jigs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates 4 Cr (4-12)

TD 40
GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing programs for point to point and contouring tape controlled machines, design of plug, snap, ring, flush pin depth, length, and indicating gages 4 Cr (4-12) *Prerequisite ED 11*

TD 41
DIE DESIGN (8 weeks)
Designing of cutting, forming, drawing, and cavity dies, simple progressive and compound arrangements 4 Cr (4-12)

TOOLMAKING TECHNOLOGY (TT)

TT 04
ELEMENTARY MACHINE SHOP I
Elementary machine operation bench, drill press, shaper, engine lathe, milling machines 3 Cr (2-3)

TT 05
ELEMENTARY MACHINE SHOP II
Theory, setup and operation of turret lathes and automatic screw machines, introduction to quality control, use of precision instruments 3 Cr (2-3)

TT 06
ELEMENTARY MACHINE SHOP III
Theory and practice of grinding machines and wheels, cylindrical, internal and surface grinding, introduction to heat treating 3 Cr (2-3)

TT 10
BASIC METALS I (8 weeks)
Use of hand tools to produce layouts and objects by hand, simple filing, sawing, assembling use of drill presses, drill sharpening, drilling to a layout, drill jigs Producing parallel and square surfaces, shaping rectangular objects 5 Cr (5-15)

TT 15
BASIC METALS II (8 weeks)
The theory of grinding tool bits, turning facing, boring and thread cutting on the lathe Practice in end, slab and straddle milling, all types of straight and plain milling 5 Cr (5-15)

TT 20
AUTOMATIC MACHINERY (8 weeks)
Theory, setup and machining with multi-tooling to produce manufactured parts to blueprint specifications Some of the typical machines upon which instruction centers are automatic screw machines, turret lathes and automatic tappers 5 Cr (5-15)

TT 25
INDUSTRIAL METROLOGY (8 weeks)
Use of precision instruments, reading and interpreting mechanical drawings, controlling quality of work by sampling method. 5 Cr. (5-15).

TT 30
ADVANCED METALS I (8 weeks)
Theory and practice in advanced precision filing, fitting, lapping and assembling of precision parts required on dies, jigs, and fixtures, boring holes to close dimensions and locations, using precision measuring instruments on machines. 5 Cr. (5-15).

TT 35
ADVANCED METALS II (8 weeks)
Theory and practice on advanced turning and face plate work, thread cutting of all types, taper turning Theory and practice in producing spur, helical, and bevel gears, indexing, spiral and cam milling, and sheet metal dies 5 Cr. (5-15).

TT 40
ABRASIVE MACHINING (8 weeks)
Theory and practice in surface, cylindrical and internal grinding. Grinding of studs, special threads, taps and electrical discharge machining are included. 5 Cr. (5-15).

TT 45
HEAT TREATING AND CUTTER GRINDING (8 weeks)
Theory and practice in case hardening, normalizing, carburizing, hardening and tempering of various types of metals. Grinding of tools and cutters is included. 5 Cr. (5-15).

WELDING (WE)

WE 01
ACETYLENE WELDING
Selected units in basic acetylene welding for plumbing students. 80 Hrs. (0-5)

WE 02
ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 80 Hrs (0-5).

WE 15
ACETYLENE WELDING
Theory and practice welding of sheet metal and mild steel plate; oxy-acetylene cutting, pipe welding, welding and brazing of ferrous and non-ferrous metals; weld testing; shop safety 400 Hrs. (1-24).

WE 25
ELECTRIC WELDING
Principles and applications of basic electric welding using various types of electrodes for welding of steel plate in all positions; pipe welding; cast iron welding, weld testing 400 Hrs. (1-24).

WE 35
INERT GAS WELDING
Theories and practices of manual inert gas shield technique (TIG) and short arc, high speed, semi-automatic, metallic arc process (MIG). 400 Hrs (1-24)

WE 45
WELDING (ADVANCED)
Practical theory application of weldments of specifications of AWS, API and ASME codes, all position welding of heavy plate and pipe; testing and weld specimens 400 Hrs. (1-24).

COMMENCEMENT AWARDS

Commencement awards give public recognition of achievement in various areas accompanied by cash awards in varying amounts

President's Award
For leadership and service to the College community

Trustees' Award
to a male student for achievement under exceptional circumstances

Trustees' Award
to a female student for achievement under exceptional circumstances

Dean's Awards
for scholastic achievement

Alcan Cable Award
for scholastic achievement in Engineering Science

American Society of Highway Engineers Award
for achievement in Civil Engineering Technology

American Society of Highway Engineers Award
for achievement in Heavy Construction Equipment Service and Operation

Avco Award
for scholastic achievement in Humanities and Social Sciences

Lewis H. Bardo Memorial Award
to a student who exemplifies the ideals of Lewis H Bardo (devotion to duty, helpfulness to others, friendliness)

Dale Russ Berg Award
for proficiency in the operation and use of heavy equipment

Darling Valve Award
for scholastic achievement in a Special Field of Study certificate program

Elizabeth R. Downs Award
for secretarial proficiency

Glenn E. Dunlap Scholarship Award
for high scholastic standing, better than average skills, dependability and competence, and capabilities of leadership as exemplified by Glenn E Dunlap—selected by the Building Construction faculty.

Health Occupation Award
to the Radiologic Technology student who demonstrates outstanding achievement in ethical conduct and technical skills

Health Occupations Award
to the Operating Room Technician student who demonstrated outstanding achievement in ethical conduct and technical skills.

Howard Award
for scholastic achievement in Forestry

Howard Award
for scholastic achievement in Horticulture

M.W. Kellogg Award
for scholastic achievement in an Associate of Applied Science Program

Lycoming County American Cancer Society Award.
to a graduating nurse who excels in bedside nursing of the cancer patient and shows compassion for the family of the cancer patient

Pennsylvania Institute of Certified Public Accountants Award
for excellence in Accounting studies.

Penn-York Lumbermen's Award
for outstanding citizenship and interest in management and wise use of forest resources.

Phi Beta Lambda Fraternity Award
to the outstanding student in the Business & Computer Science division

Helen A. Smith Award
to the Practical Nursing student who has shown extraordinary achievement in theory, practice, and personal growth

William J. Stitzel Memorial Award
to the Heavy Equipment Construction graduate who best exemplifies William J. Stitzel's dedication and service to the College and the student body.

Robert G. Thomas Award
to the graduate attaining the highest cumulative average in Welding

Wall Street Journal Student Achievement Award
to a graduate demonstrating superior achievement in Business.

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ROBERT W. STULL / INSTRUCTOR IN ELECTRICAL TECHNOLOGY AND CONSTRUCTION, A A S , The Williamsport Area Community College, B Tech , Rochester Institute of Technology

BONNIE R. TAYLOR / INSTRUCTOR IN BUSINESS ADMINISTRATION B S , Bloomsburg State College (On Leave, 1974-75-76)

MARY E. TEMPLE / INSTRUCTOR IN PRACTICAL NURSING, R N , Williamsport Hospital School of Nursing

DAMON L. THOMPSON / ASSISTANT PROFESSOR OF ENGLISH, B F A., Ohio State University, M F A , State University of Iowa

H. LaRUE THOMPSON / INSTRUCTOR IN ELECTRICAL CONSTRUCTION

RAY TYLER / ASSISTANT PROFESSOR OF BUSINESS ADMINISTRATION, B S , Susquehanna University; M S B A , Bucknell University

RITA C. ULRICH / ASSISTANT PROFESSOR OF BUSINESS ADMINISTRATION, B S , M S , Bloomsburg State College

ROBERT S. ULRICH / ASSISTANT PROFESSOR OF ENGLISH, A.B , Lycoming College, M.Ed , Bloomsburg State College

CHALMER C. VAN HORN / ASSOCIATE PROFESSOR OF DRAFTING TECHNOLOGY, B S , The Pennsylvania State University

JOHN J. WATSON / INSTRUCTOR IN CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

RICHARD J. WEILMINSTER / INSTRUCTOR IN HORTICULTURE, A A S , State University of New York, B S., University of Georgia, M S , The Pennsylvania State University

JACKIE E. WELLIVER / INSTRUCTOR IN DRAFTING TECHNOLOGY, C E T

MARY JANE WEST / ASSOCIATE PROFESSOR OF ENGLISH, B S , M S., Bucknell University

CHARLES E. WILKINSON / ASSOCIATE PROFESSOR OF AUTOMOTIVE TECHNOLOGY

BERNARD C. WILLIAMS / ASSISTANT PROFESSOR OF WELDING

THOMAS M. WINDER / ASSISTANT PROFESSOR OF COMPUTER SCIENCE TECHNOLOGY, B S , Lycoming College

HAROLD D. WINNER / INSTRUCTOR IN CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

GEORGE P. WOLFE / ASSOCIATE PROFESSOR OF COMPUTER SCIENCE TECHNOLOGY, B S , Lycoming College, M S , Clarkson College of Technology

LLOYD F. WOODLING / ASSISTANT PROFESSOR IN MATHEMATICS, B S , Lock Haven State College, M A , Bucknell University

NAOMI L. WOOLEVER / ASSISTANT PROFESSOR IN JOURNALISM, B S , M A , The Pennsylvania State University

WILLIAM P. YOUNG / INSTRUCTOR IN CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

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1975-76 COLLEGE CALENDAR

FALL TERM/AUGUST 22-DECEMBER 20, 1975

August 22	Faculty Organization & Convocation
August 25-26	Registration & Orientation
August 27-29	Classes Begin
September 1	Labor Day
September 2	Classes Resume
November 28	Thanksgiving Vacation Begins
December 2	Classes Resume
December 17	Classes End
December 18-20	Final Exams
December 20	End of Fall Term

SPRING TERM/JANUARY 6-MAY 15, 1976

January 6	Registration & Orientation
January 7	Classes Begin
February 16	Spring Vacation Begins
February 18	Classes Resume
March 15	Spring Vacation Begins
March 17	Classes Resume
April 15	Easter Vacation Begins
April 20	Classes Resume
May 4	Last Day of Classes
May 5-7	Final Exams
May 7	End of Spring Term
May 10-14	Student Orientation
May 15	Commencement

1976-77 COLLEGE CALENDAR

FALL TERM/AUGUST 20-DECEMBER 18, 1976

August 20	Faculty Organization & Convocation
August 23-24	Registration & Orientation
August 25-27	Classes Begin
September 6	Labor Day
September 7	Classes Resume
November 25	Thanksgiving Vacation Begins
December 1	Classes Resume
December 15	Classes End
December 16-18	Final Exams
December 18	End of Fall Term

SPRING TERM/JANUARY 4-MAY 14, 1977

January 4	Registration & Orientation
January 5	Classes Begin
February 10	Spring Vacation Begins
February 14	Classes Resume
March 7	Spring Vacation Begins
March 9	Classes Resume
April 7	Easter Vacation Begins
April 12	Classes Resume
May 3	Classes End
May 4-6	Final Exams
May 6	End of Spring Term
May 9-13	Student Orientation
May 14	Commencement

I FOUND A CURRICULUM TO FIT MY ABILITIES AND NEEDS!

Please send me an Application for Admission form to
THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name_____

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City_____State_____ZipCode_____

High School_____Year of Graduation_____

College (s) attended_____

I am interested in the_____Curriculum_____

I would like further information about_____

_____

_____

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OFFICE OF ADMISSIONS

College Offices are open throughout the year, except on official College holidays, from 8:00 A.M. to 4:00 P.M. Monday through Friday.

The Community College reserves the right to make any changes it deems advisable after publication of this Bulletin. Each student is expected to be familiar with the information presented in this Bulletin and other College publications.

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